ENGINEERING NEWS-RECORD

N. Y. Coliseum—Three buildings in one p. 34

E B POWER GS N
UNIVERSITY MICROFILMS IN
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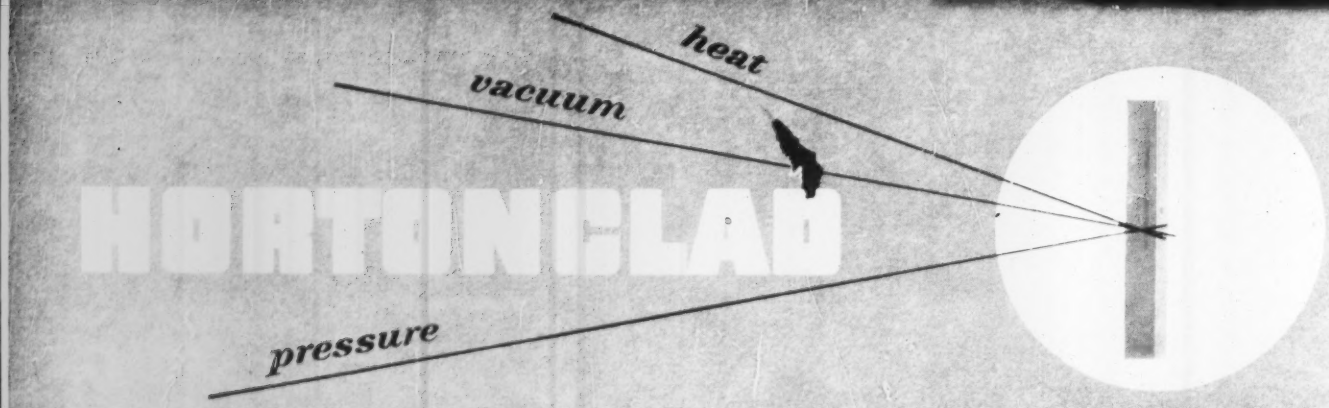
ANN ARBOR MICH

A McGRAW-HILL PUBLICATION

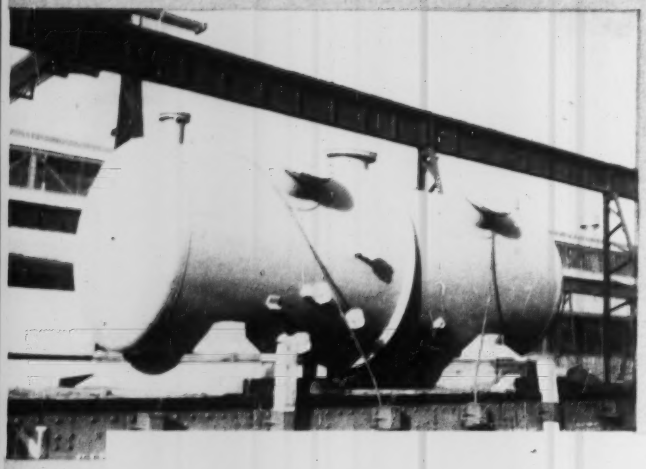


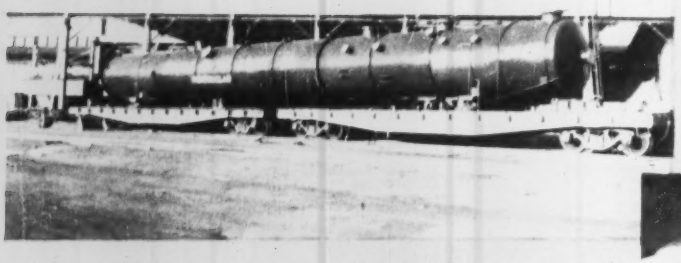
NEW CLADDING PROCESS assures uniform thickness of the clad layer

HORTONCLAD®—a composite metal having an integral and continuous bond produced by a *new and revolutionary* high vacuum brazing process. Produced at CB&I's Birmingham, Alabama, plant, Hortonclad provides the most complete line of clad steels available for use in fabrication of process and storage vessels for the petroleum, chemical, paper, food, brewing and other industries.

In the manufacture of Hortonclad the desired alloy is integrally and continuously bonded to the backing plate by the application of heat, vacuum and pressure in a manner that assures uniform thickness of the clad layer. It meets all requirements as defined by the ASME boiler code and API-ASME Unfired Pressure Vessel Code relating to the use of composite or clad materials.

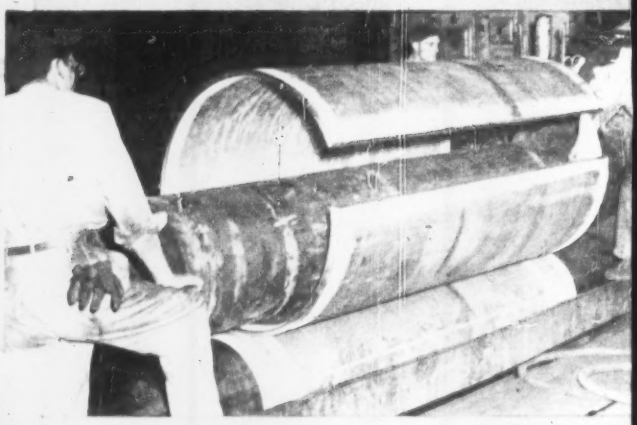
Write our nearest office for further information on Hortonclad and its application to your operation.





(Top View): Hortonclad condensate drum loaded for shipment.

(Above): Monel Hortonclad and stainless Hortonclad were used in the fabrication of this tower.



(Above): Shell ring of silver Hortonclad on stainless steel being rolled to shape. Combination of fine silver on stainless backing plate could not be produced before the Hortonclad vacuum brazing method of cladding was developed.

CBI

Chicago Bridge & Iron Company

Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston
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Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PA.

Paving operations near Allentown. Contractor for this section is John H. Swanger, Inc., Lancaster, Pa.

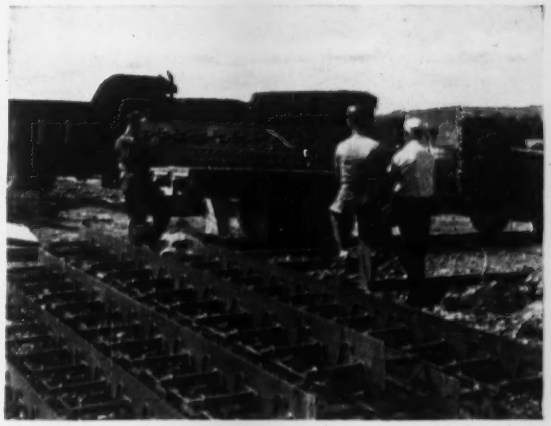
Pennsylvania Turnpike Heads North

The port and industrial facilities of Philadelphia are being linked to the anthracite coal regions and the Pocono Mountain resort sections to the north by the 110-mile-long Northeastern Extension of the Pennsylvania Turnpike.

Beginning at Plymouth Meeting near Philadelphia, the new extension will by-pass major communities and push north to Scranton to a junction of U. S. Routes 6 and 11. Eventually the highway will be extended to the New York State line.

The Northeastern Extension will be a 4-lane limited-access dual highway. Lanes will be 12 ft wide with a 10-in. concrete slab.

Bethlehem, which is well-represented on all sections of the Pennsylvania Turnpike, is supplying dowel units, reinforcing steel, bar mats and other highway steels for the road bed. In addition, Bethlehem structural shapes are being used in the construction of bridges and over-passes, and Bethlehem guard rail will protect motorists and truckers along many miles of the superhighway.



Light-weight, easy-to-handle Bethlehem dowel units are unloaded from truck.

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On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

Sound powered
TELEPHONES
NEED NO CURRENT

For temporary use on construction work, these instruments move with the job as it progresses. Also for permanent installation on industrial projects. Indoor or outdoor models in selective or common ringing and semi-selective or common talking.

Positive communication is assured at all times because no batteries or current of any kind are required. Cost of upkeep is negligible.

Photo shows Model "K" Phone in use on Niagara River project. General Contractors, Herbert F. Darling, Williamsville, N. Y.

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Robert F. Boger
Publisher

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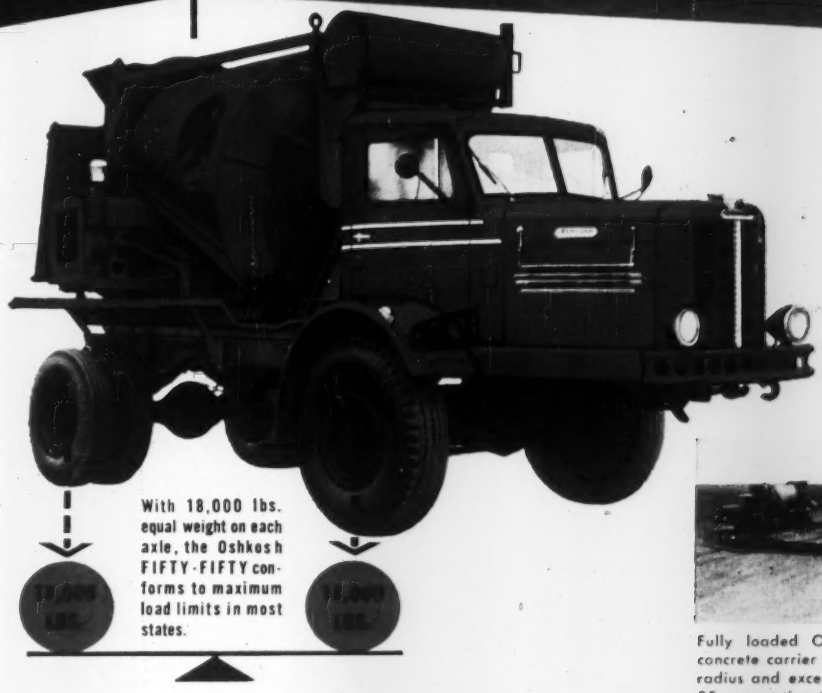

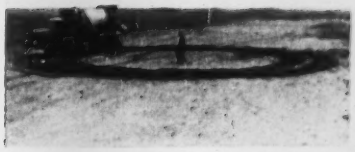

Fully loaded Oshkosh 50-50 ready-mixed concrete carrier demonstrating short turning radius and excellent flotation while making 25 consecutive turns in soft beach sand at Idlewild Airport, New York, New York.

Oshkosh 50-50 ready-mixed concrete carrier with high level pouring spout eliminates double handling of concrete. Photo taken at New Penn Daw School, Alexandria, Va.

Never before has there been a ready-mixed concrete carrier like Oshkosh's FIFTY-FIFTY! Up to 5 cubic yard capacity means greater payloads — increased profits! Powerful 4-wheel drive traction lets you spot loads under adverse conditions . . . get jobs competition can't handle! Two driving axles means lower maintenance cost and its 144" wheelbase means greater maneuverability. Easy to service — just lift side panels for instant access to engine! Write for details and how you can have an on-the-job demonstration without obligation!

Be sure to visit our exhibit at the National Ready Mixed Concrete Association Convention, Chicago, Feb. 13-16, 1956

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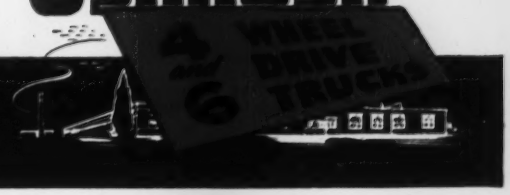

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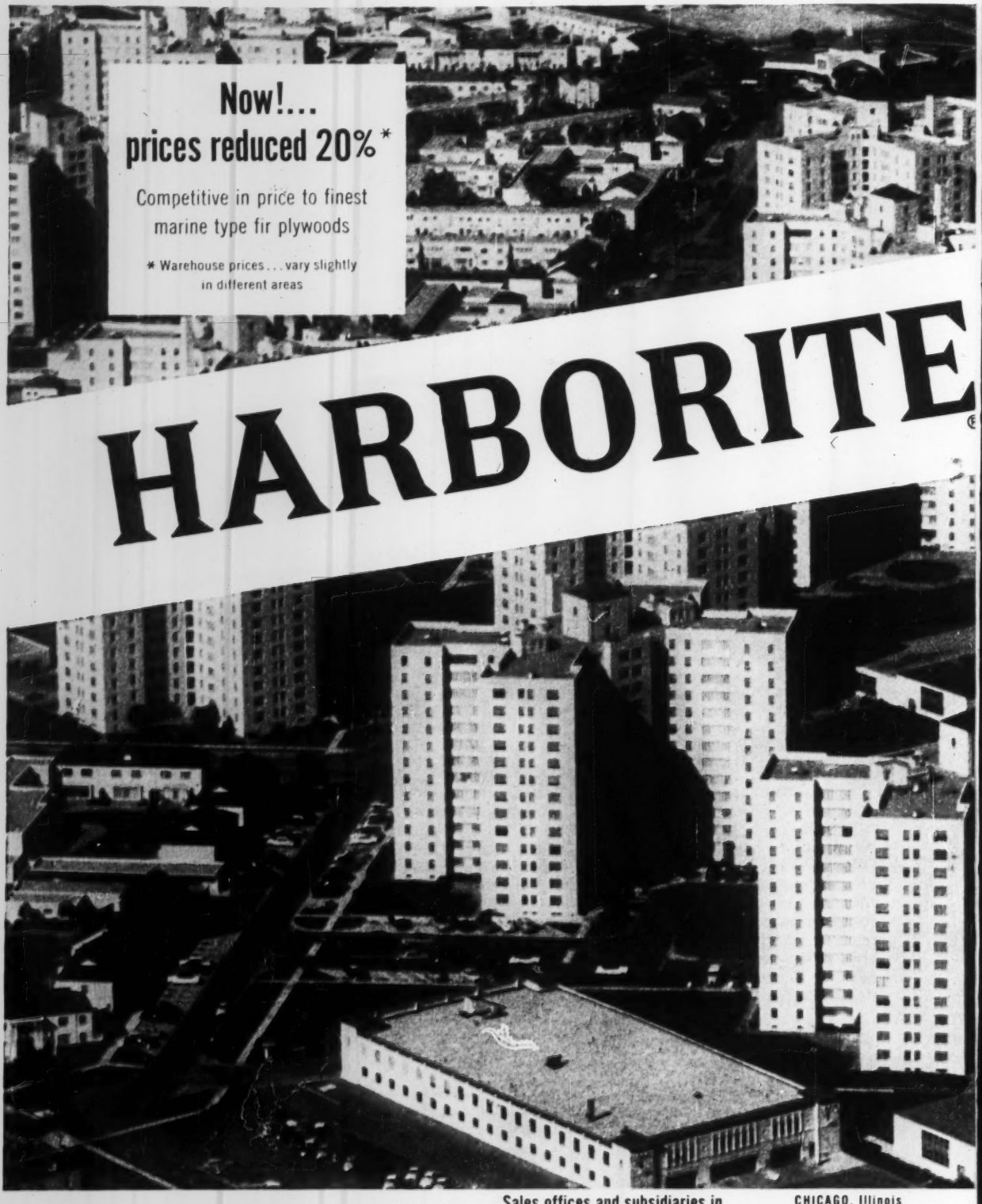
OSHKOSH WISCONSIN



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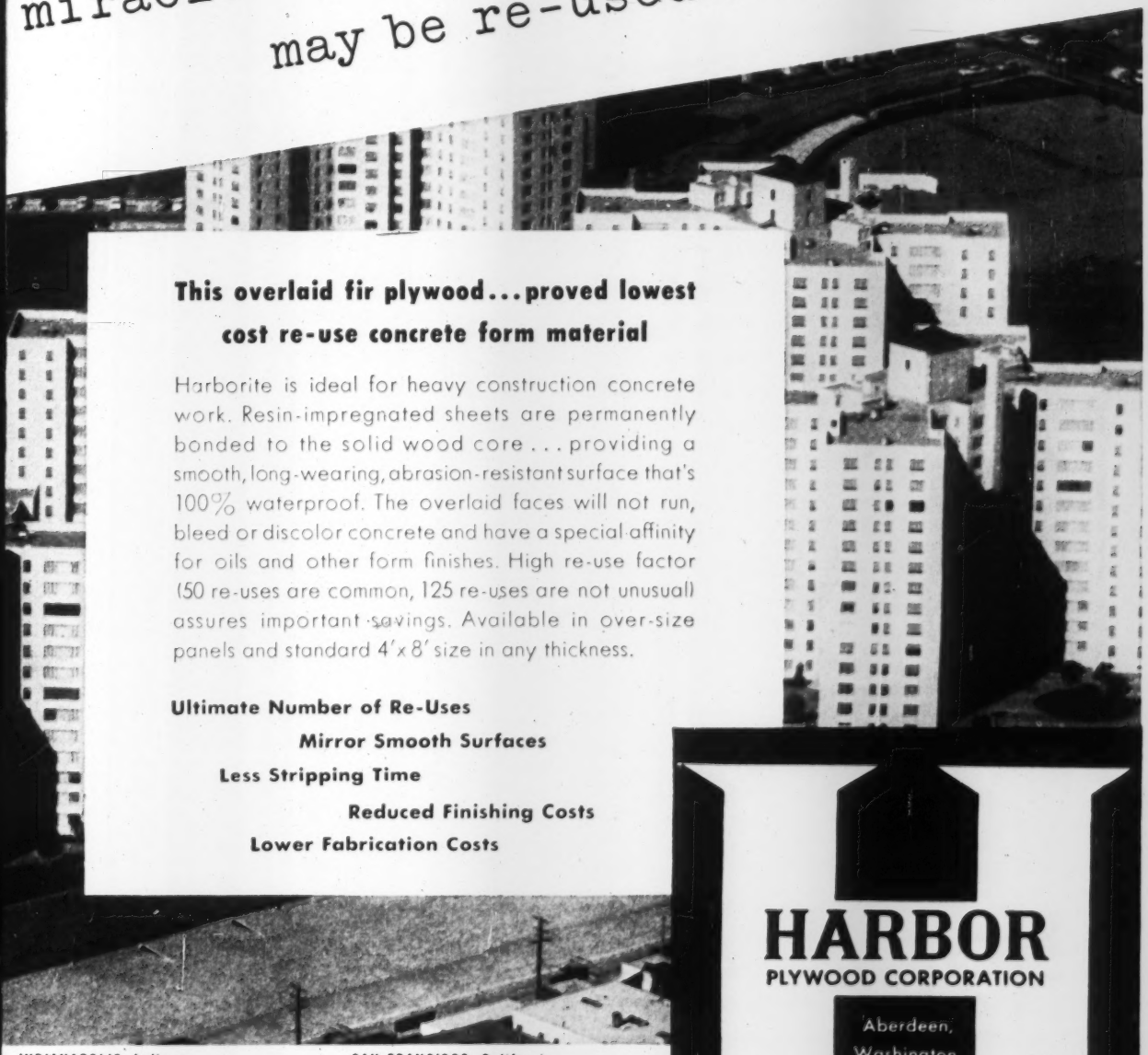
miracle concrete form panels may be re-used 125 times!



This overlaid fir plywood...proved lowest cost re-use concrete form material

Harborite is ideal for heavy construction concrete work. Resin-impregnated sheets are permanently bonded to the solid wood core . . . providing a smooth, long-wearing, abrasion-resistant surface that's 100% waterproof. The overlaid faces will not run, bleed or discolor concrete and have a special affinity for oils and other form finishes. High re-use factor (50 re-uses are common, 125 re-uses are not unusual) assures important savings. Available in over-size panels and standard 4′ x 8′ size in any thickness.

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96% OF ALL 6-INCH AND LARGER CAST IRON WATER MAINS EVER LAID IN 25 REPRESENTATIVE CITIES ARE STILL IN SERVICE.

Based on the findings of a survey conducted by leading water works engineers.

CAST IRON PIPE

DISTINGUISHED CLUB...

The Cast Iron Pipe Century Club is probably the most unusual club in the world. Membership is limited to municipal, or privately-owned, water and gas supply systems having cast iron mains in service for a century or more. Although the Club is formally constituted, there are no dues, no regular meetings, and no obligations other than to inform the Recording Secretary if and when the qualifying water or gas main is taken out of service, or, sold for re-use.

In spite of the unique requirements for membership, the Club roster grows, year by year, from 18 in 1947 to 73 in 1955. Members comprise 38 *water* and 35 *gas* utilities, in cities large and small, from the Pacific to the Atlantic, from Canada to the Gulf.

If your records show a cast iron main in service, laid a century or more ago, the Club invites you to send for a handsome framed Certificate of Honorary Membership. Address Thomas F. Wolfe, Recording Secretary, Cast Iron Pipe Century Club, Peoples Gas Bldg., Chicago 3, Illinois.

C. I. P. CENTURY CLUB NOW HAS 73 MEMBERS!

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Bureau of Water, Dept. of Public Works
BALTIMORE, Maryland
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BOSTON, Massachusetts
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Public Service Electric & Gas Company
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PAINESVILLE, Ohio
City of Painesville, Gas District Department
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PHILADELPHIA, Pennsylvania
Department of Public Works, Bureau of Water
PHILADELPHIA, Pennsylvania
Philadelphia Gas Works Co.
PITTSBURGH, Pennsylvania
Bureau of Water, Department of Public Works
PLYMOUTH, Massachusetts
Plymouth Gas Light Company
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Pottsville Water Company
PROVIDENCE, Rhode Island
Providence Gas Company
QUEBEC, Canada
Quebec Power Company, Gas Division
READING, Pennsylvania
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RICHMOND, Virginia
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. . . Reader Comment

Code Revising Works Well

SIR:—The question, "Who Owns a Model Code?" raised in your editorial on p. 124 of the Oct. 27 issue, is a stimulating one. Of course, the obvious quick answer is that whoever holds the copyright to such a code controls it. However, the problem is really: "Do the model codes serve the needs of the public?"

There are four widely accepted model building codes in this country today—three prepared by building officials, with the assistance of industry, and one by the insurance industry. The National Building Code, developed by the National Board of Fire Underwriters, is the oldest of the four in use today. The Uniform Building Code of the Pacific Coast Building Officials Conference, first published in 1927, is the second oldest. It is in use now by about 700 jurisdictions. No fee is required for the use of any of the four model building codes by any governmental jurisdiction or other agency.

You are no doubt aware that no model building code or amendment can become effective in any governmental jurisdiction without formal adoption by its governing body.

Inasmuch as building officials have developed three of these model codes, and they represent local government, which in turn represents the people, it can actually be said that the people control and own these codes. If the representatives of the people do a good job, the people have a good model code, which will gain wide acceptance and use. If they do a poor job, the model code will prove unacceptable and will not become widely used.

It is doubtful if industry generally will have the public well-being sufficiently at heart to be able to develop a just code, fair to the public and industry as well. In fact, one of the biggest incentives to the development of model codes has been the enormous number of local codes, widely diver-

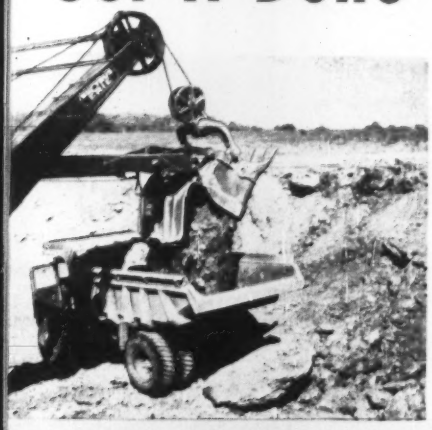
(Continued on page 12)

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Word to Contractors:

"Get It Done for the Cash-Paying Drivers"



Tyler & Breslin's 2½-yd. Bucyrus-Erie 54-B drops a full load to rear-dump near Okolona, Kentucky.

South of Lebanon Junction, the R.R. Dawson Bridge Company's 22-B clamshell digs bridge footings.

A 1½-yd. Bucyrus-Erie 38-B helps cut down a hill on Turnpike's Section 1C.

Working on the Turnpike's biggest rock cut — a one million yarder near Elizabethtown — is this 3-yd. torque-converter-equipped Bucyrus-Erie 71-B.

Need quick money return from Kentucky Turnpike

Kentucky saw the need for speed when it entered the turnpike picture. It sold $38½ million in bonds to pay for a 38-mile Louisville-Elizabethtown Turnpike. The loan was made midway through 1954. Engineering surveys predicted plenty of vehicles would use the highway, starting with 3 million in 1956 and climbing to 6 million in 25 years. The road would pay.

The problem was to get cash customers on the turnpike quickly. Engineers thought the job should be done in one year. The all-out construction effort got under way in January, 1955.

PROVEN RIGS STEP IN

Kentucky awarded the job to experienced, able contractors who were the best bet for getting the job done well and fast. These firms, in turn, called on skilled men and the finest, modern construction machines.

Wherever you see the tough, time-fighting turnpike jobs going on, you'll see plenty of Bucyrus-Erie excavators. These rigs have proved themselves over the past 75 years in everything from rock to iron ore. They're *ready* for today's tight-scheduled and big-output-demanding turnpikes.

A MORAL HERE

Take the Kentucky Turnpike. Ten Bucyrus-Eries were on the job, ranging in size from the ¾-yd. 22-B to one of the newest machines in the line, the torque-converter-equipped 3-yard, 71-B.

There's a lesson to be learned here. You want the big yardages these turnpike builders get. Why not rely on the same equipment? Put Bucyrus-Eries to work for you.

183E55C

BUCYRUS ERIE

South Milwaukee Wisconsin

75 YEARS OF SERVICE to Men Who Shape the Earth

Are you looking for a really good primary plant?

here's what Mr. Butler says:

" I like the way our Lippmann portable plant operates day after day to turn out the production I need. The 30x42 jaw crusher on this plant is the rock-eatingest crusher I have ever used. I get 250 yd.per hr. of 4" minus stone from it and with the amount of crushing necessary, that's real production."

(Signed) **Donald F. Butler, Pres.**
Butler Sand & Gravel Co.
Nelson, Illinois

LIPPMANN Portable Plants

with famous GRIZZLY-KING and ROCK-RAM jaw crushers

Mr. Butler's praise of his Lippmann Portable primary crushing plant is echoed by the owners of other plants too. These 3 different installations feature the famous Lippmann Grizzly-King and Rock-Ram overhead eccentric Jaw Crushers, together with apron feeder, loading conveyor and power unit. It's the kind of equipment that brings in higher profits — the kind of equipment you would be proud to own. Rugged frame and rubber tire mounting, plus exceptional balance enable them to be towed, positioned and put to work quickly without jacking-up. You get many other Lippmann engineering extras that give added assurance of extra profits.

LIPPMANN portable primary crushing plants are available in sizes up to 30 x 42 (jaw crusher size) and with gasoline, diesel or electric power. For full information see your local Lippmann dealer or write the factory. Lippmann Engineering Works, 4645 W. Mitchell St., Milwaukee 13, Wis.

1610–56–3

Lippmann 24 x 36 portable primary plant with Rock-Ram crusher feeding a Lippmann 40 x 36 Pulverizer.

24 x 36 Grizzly-King crushing plant and Lippmann stacking conveyor in an Illinois pit.

LEW

LIPPMANN

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The quick acceptance and success of the 4-wheel drive tractor-shovel probably has no parallel in construction equipment history. Pioneered and first introduced by Hough in 1948, this type of machine is numbered in the thousands among contractors, pits and quarries, public bodies, mines and industry.

Hough leadership and pioneering in the 4-wheel drive field continues and is presently represented by three new "PAYLOADER" sizes — all incorporating the "know-how" and new features that result in better performance — more production, easier and faster — at lower net cost.

All three have powerful pry-out action and 40 degree bucket tip-back at ground level to dig faster, get bigger loads and carry bigger loads — safely. All three have more powerful engines — a choice of gasoline or diesel — and many other more-yardage features.

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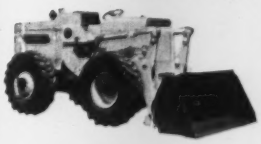

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2 cu. yd.

MODEL HH
1½ cu. yd.

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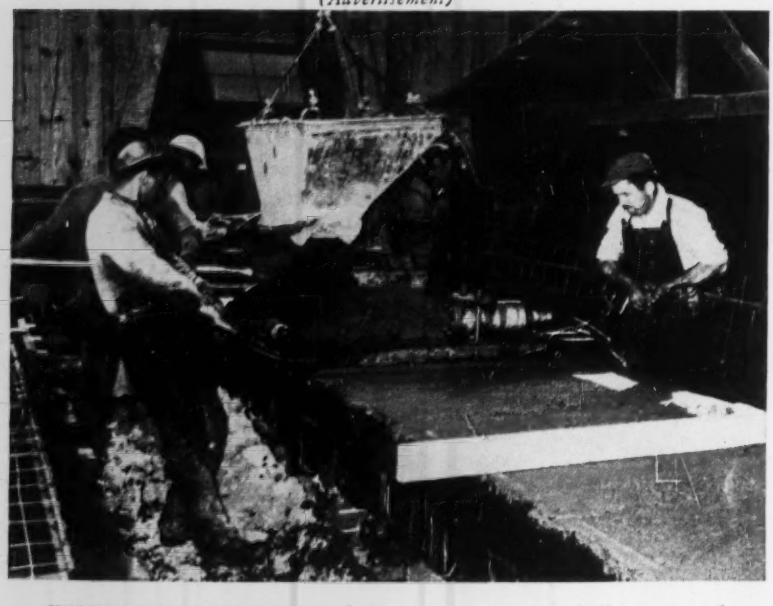


WORKMEN ARE SHOWN vibrating concrete in thin shell precast roof panels using Viber Model PX pneumatic vibrator mounted on screed.

Contractor Casts 2-Inch Reinforced Roof Panels with Special Screed Using Viber Standard External Vibrator

● **Contractor for more than** 740 precast, thin-shell roof panels for an earthquake resistant reservoir at the new San Pablo Filter Plant, El Cerrito, Calif., devised an efficient method of vibrating reinforced concrete webs only 2 inches thick.

P. Grassi American Terrazzo Co., San Francisco, developed a screed on which a Viber standard Model PX pneumatic high speed vibrator was mounted. Thus concrete was screeded and vibrated in one operation.

Precast panels were 24 ft. long by 4 ft. wide with webs 2 in. thick. In addition to being thin in section, webs were reinforced with welded wire fabric making these areas virtually inaccessible to internal vibration. This made external vibration necessary.

Following proper curing, panels were hoisted by crane and placed on girders also precast by the contractor. Dimensional accuracy of precast panels was good, facilitating placement which was done at the rate of 10 panels in less than one hour. Panels were then welded to inserts in girders to make structure solid.

Viber's Model PX concrete vibrator selected by the P. Grassi American Terrazzo Co. is used widely in pipe yards and tunnel lining operations wherever reusable steel forms are set up for use on a production basis.

For further information on Viber's complete line of internal and external vibrators, contact your authorized distributor or Viber Company, Dept. 7-A, 726 South Flower Street, Burbank, Calif.

PRECAST ROOF PANELS shown welded in place were set on girders by truck-crane. Channel side is 8 inches deep and has shelf to retain grout seal.

VIBER

CONCRETE VIBRATORS SINCE 1931

. . . Reader Comment

gent, which have frequently been referred to as "masonry codes," "lumber codes," "steel codes" and the like. The model codes have successfully eliminated such reference epithets directed to them.

Several model building codes have been developed by other groups than building officials, such as universities and chambers of commerce, and have not met wide acceptance owing to their excessive detail and failure to meet the actual problems of local communities. If the building officials are capable and honest, which the majority are, there are no better representatives of the people today to develop model codes, and retain them in the ownership of the people.

The founders of the Pacific Coast Building Officials Conference recognized the fact that no code could ever be developed and used without the assistance of industry, architects and engineers. Accordingly, the procedure for developing the Uniform Building Code and making periodic changes to it has been and is one of the most democratic procedures in the country. Code changes are generally studied in subcommittees, with industry and others participating, followed by publication, so that any one may offer changes or corrections. Industry and building officials may then present their case before the Code Changes Committee and finally participate in discussions on the floor of the annual business meeting. Members of industry may make, second and discuss motions, but voting is limited to building official members of PCBOC. This procedure has been widely acclaimed for the outstanding results achieved.

You do not appear to be fully informed of the details of the particular controversial code change to which you refer. At the present time, under the Uniform Building Code, regulation of fabrication, such as glued laminated trusses, precast concrete and shop welded members, at distant points can be accepted by one of two methods:

1. By a special inspector approved by the building official (paid for by the fabricator and on duty at all times).

2. By the certification of an approved testing laboratory, or similar agency that makes sufficient checks to determine the compliance of the product. (In some locations this is difficult due to no such laboratory being available in the community.)

Because both of these methods approposed that PCBOC establish a further service by making periodic checks

DEHYDRATINE NO. 22

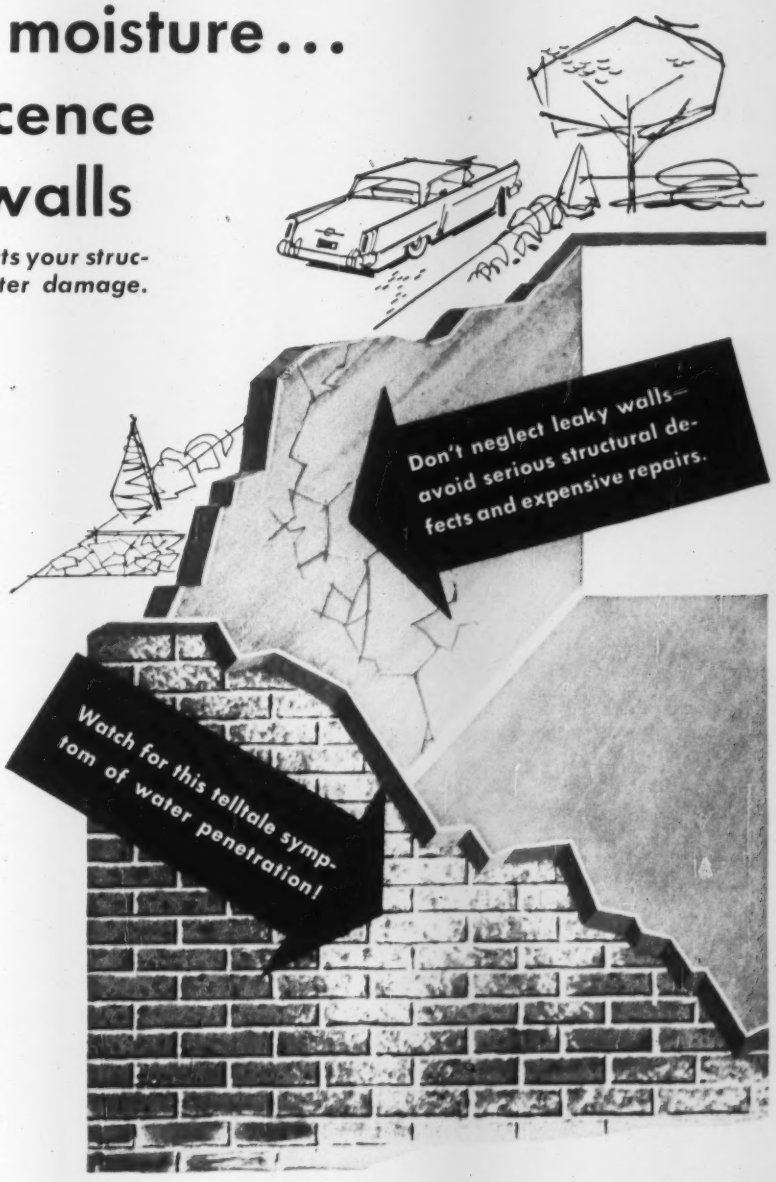
seals out moisture... stops efflorescence on masonry walls

Silicone base water repellent protects your structures from inside and outside water damage.

Dehydratine No. 22 is no ordinary "surface" repellent. It functions on the principle of "negative capillarity" *in depth*. The highly penetrating characteristics of Dehydratine No. 22 set up a valve-like action within the masonry that permits vapor to escape *outward*, but stops the capillary absorption of solid drops of moisture from passing inward.

Dehydratine No. 22 reduces soiling and discoloration

Dirt and soluble stains cannot enter the pores of masonry treated with Dehydratine No. 22. Thus foreign particles trapped on the surface are readily washed off by rain. Owners and operators of concrete or light-colored stone buildings find that this saves money by eliminating difficult and expensive cleaning operations. Since Dehydratine No. 22 is effective against "white bloom" or efflorescence, it preserves the original beauty of the exterior without changing the color or texture of the surface. It pays to protect your structures against *inside* and *outside* water damage with Dehydratine No. 22.


Don't neglect leaky walls—avoid serious structural defects and expensive repairs.
Watch for this telltale symptom of water penetration!

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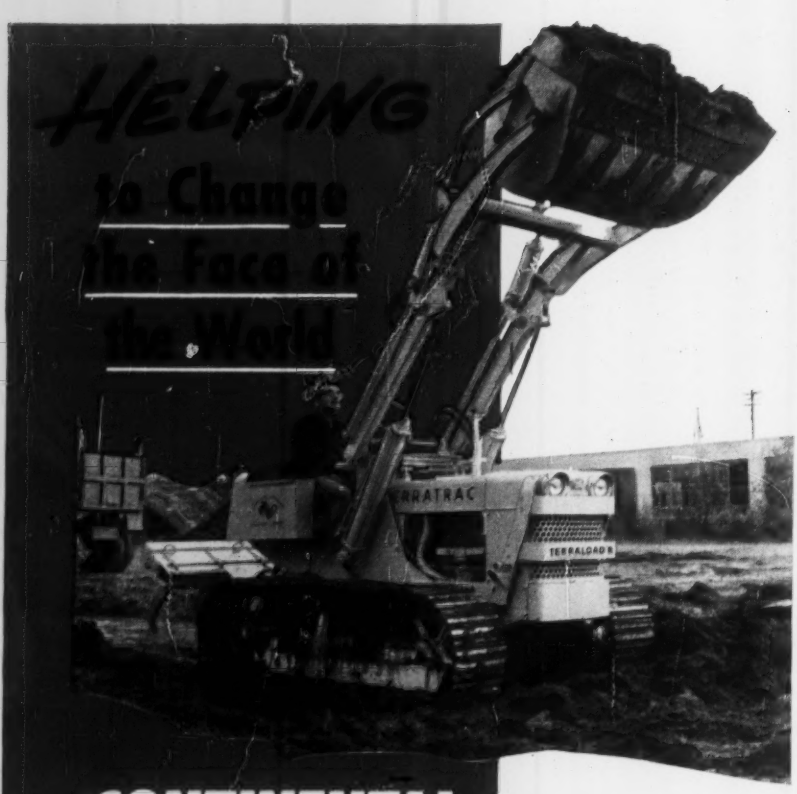

...CONTINENTAL
RED SEAL
CUSHIONED POWER

Wherever you go, these days, you see men at work re-shaping the landscape with the aid of specialized machines. And no matter what the specific job—clearing land, ditching for irrigation, grading for highways, laying pavement or erecting buildings—you'll note a pronounced swing to equipment with Continental power. . . . The adoption of dependable Red Seals—gasoline or Cushioned Power Diesel—by more and more leading builders of specialized machines, reflects a spreading recognition, on the part of machine users, of this basic fact: There's a vast difference, in performance, dependability, economy and upkeep cost, between the ordinary engine and the Continental that's engineered and built for its job.

•

ONE BIG REASON WHY THE NEW TERRATRAC MODEL 600 IS SETTING NEW SALES RECORDS ALL OVER THE COUNTRY IS THE FACT THAT THIS TRACTOR AND ITS CUSHIONED POWER DIESEL ENGINE ARE ENGINEERED AS A UNIT. TERRATRAC MODEL 600 IS AN OUTSTANDING EXAMPLE OF HEAVY DUTY EQUIPMENT WITH BUILT-FOR-THE-JOB POWER.

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1252 OAKLEIGH DRIVE, EAST POINT (ATLANTA) GA.

. . . Reader Comment

pear cumbersome and costly, it was (not just "a single annual inspection" as stated) and approve the plant as capable of producing acceptable products and approve the product on the basis of performance standards. Largely due to fear and misunderstanding, this was strongly opposed by some segments of industry when it was submitted over a year ago.

During the past year, industry neglected to accept the offer of the building officials to meet with them and solve the problem. In addition, a week before this year's annual meeting a telegram was sent to many city councils and mayors asking them to instruct the building official to oppose this measure (without allowing time for the building official to discuss or explain it). The immediate result was an overwhelming reaction by the building officials in favor of the proposal, which was adopted by a more decisive vote than would have otherwise been recorded.

It was publicly announced at the meeting that this proposal would not be effectuated until the executive board of PCBOC had approved a workable solution resulting from meetings to be held this year by industry and building officials.

CASSATT D. GRIFFIN
Superintendent of Building
County of Los Angeles, Calif.

[Editor's Note—Architects and engineers do not consider the PCBOC procedure for amending the Uniform Building Code democratic because they are not permitted to vote. In fact, many West Coast engineers feel that they are not consulted now on the code to the same extent as in former days.]

CALENDAR

American Road Builders' Association, annual convention, Miami Beach Auditorium, Miami Beach, Fla., Jan. 11-14.

Highway Research Board, annual meeting, Sheraton-Park Hotel, Washington, D. C., Jan. 17-20.

American Society of Heating and Air-Conditioning Engineers, annual meeting, Sheraton-Gibson Hotel, Cincinnati, O., Jan. 23-25.

National Association of Home Builders, annual convention-exposition, Conrad Hilton and Sherman Hotels, and the Coliseum, Chicago, Ill., Jan. 22-26.

Engineers' Joint Council, general assembly, Hotel Statler, New York, N. Y., Jan. 26-27.

Associated Equipment Distributors, annual meeting, Conrad Hilton Hotel, Chicago, Ill., Jan. 29-Feb. 2.

Society of American Military Engineers, annual technical meeting, Palmer House, Chicago, Ill., Feb. 9-10.

Association of Asphalt Paving Technologists, annual meeting, Hotel Cleveland, Cleveland, O., Feb. 13-15.

Associated General Contractors of America, national convention, Waldorf-Astoria Hotel, New York, N. Y., Feb. 13-16.

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*TRADEMARK

and CLUTCH PLATES

Give—

100% MORE TORQUE GRIP

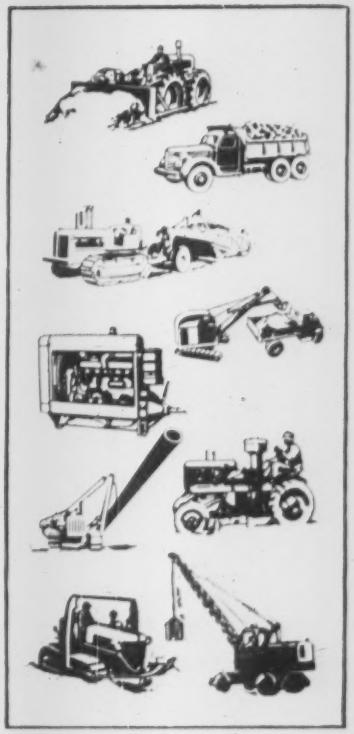
Reducing clutch size and engaging pressure

400% LONGER WORK LIFE

Operate longer without adjustment or plate replacement

50% BETTER HEAT DISPOSAL

Avoid down-time caused by burned or warped plates



These NEW type ROCKFORD clutches have been developed and field tested by Rockford Engineers for heavy-duty clutch service. Because of their specialized characteristics, MORLIFE type ROCKFORD clutches are best suited for use in off-the-road machines such as tractors, trucks, tanks, cranes, shovels, bulldozers, earth movers, pipe layers, power units and other heavy duty equipment. For information how this NEW development will improve the operation and increase the on-the-job hours of your heavy-duty machines, write Department E.

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THE LINE THAT HELD

At Waterbury, Conn., this Lock Joint Reinforced Concrete Cylinder Pipeline, undermined by flood waters, gave trouble-free service, alleviating a critical water shortage.

Although sections of this 48" Lock Joint water supply line for Hartford, Conn. were uncovered by the flood, it continued to give satisfactory service.

The destiny of England once hung on Wellington's "thin, red line" at the Battle of Waterloo. Daily your community's safety from fire and epidemic depends, to a large degree, on its water supply and sewage lines.

When the backwash of Hurricane Diane inundated western New England, the many Lock Joint installations in the area stood firm. These lines, in some cases the main source of water supply or of sanitary sewage disposal, continued to give trouble-free service even when uncovered and undercut by raging flood waters.

Such rugged pipe deserves your consideration. Its strength is evident, its initial high carrying capacity is permanent, and its useful life is exceptionally long.

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Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Mo.

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ENGINEERING NEWS-RECORD

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Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Price 35¢ each copy except Annual Cost Issue. Semi-annual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

FIELD DAY FOR OPTIMISTS—Chill winds that ushered in the new year throughout much of the nation failed to cool off any of the glowing prospects for the construction industry in '56. ENR's annual January survey of builders and bankers, architects, engineers, materials suppliers and major industrial firms reported a now-familiar story: Another good year is coming for construction. With a record-shattering '55 now in the history books, most regions look forward to an even better '56 (page 21).

How much better will '56 be in terms of construction put-in-place? The Associated General Contractors conclusion: 1956 will be the first $60-billion year on the books, topping record-breaking '55 by some $3 billion. The figures cover both new construction and maintenance and repair.

A steadily-mounting volume of state and local public works projects and continuing gains in private nonresidential construction will more than offset a mild decline in housing, AGC predicted.

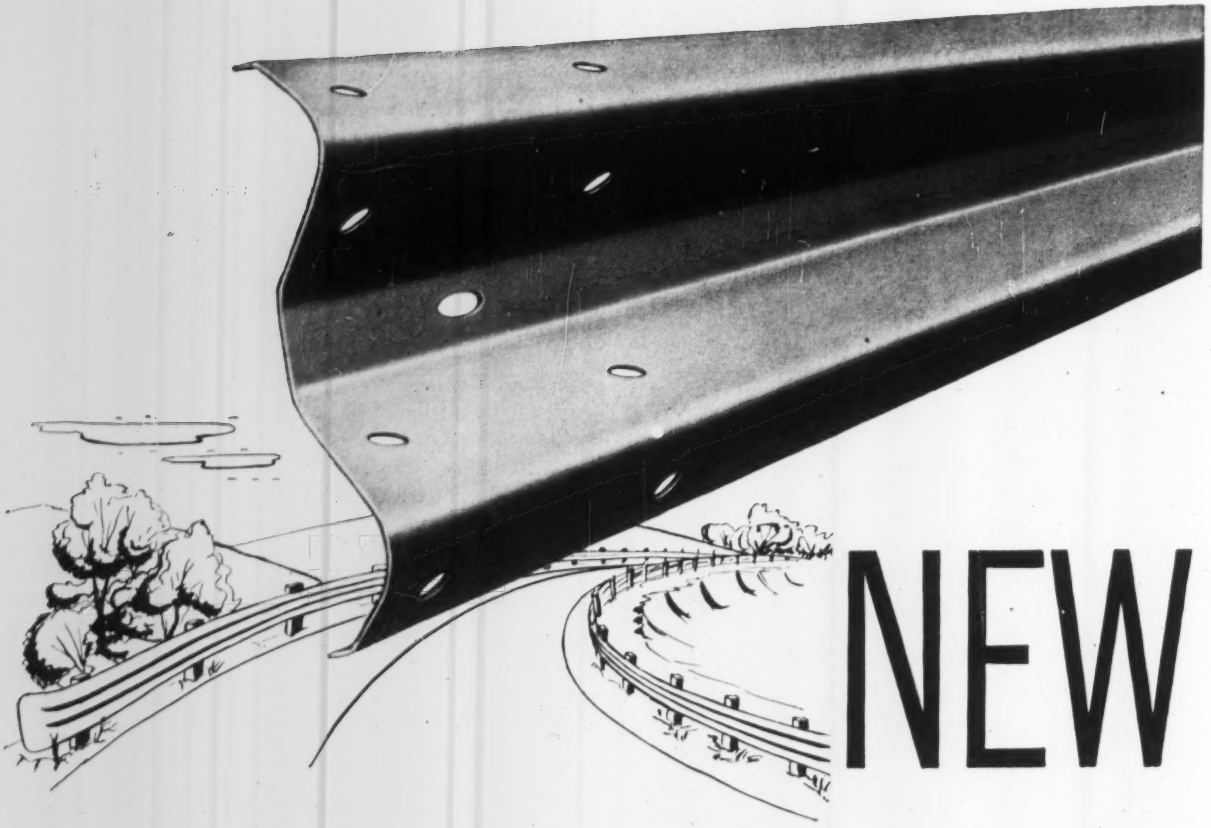
The general contractors group estimates that the $44.5-billion potential for new construction in '56 will include $31.1 billion in private work (up 3%) and $31.4 billion in public work (up 11%). In addition, AGC estimates $15.5 billion will be spent for maintenance and repair.

FEDERAL AID FOR FEATHER RIVER—California's $1.6-billion Feather River plan is no longer to be thought of strictly as a state undertaking as originally conceived (ENR Mar. 10, 1955, p. 21). Last week's $100-million flood (page 26) already has brought forth a proposal for $100 million in federal aid toward building Oroville Dam, key storage unit in the grandiose water development scheme.

Last week, Acting State Engineer Harvey O. Banks was quoted as saying, "We would hope that the federal government would contribute to the Feather River project."

As we go to press, a review of the state's Feather River plan is being completed by the Bechtel Corp. of San Francisco and several cooperating individual consultants (ENR Sept. 1, 1955, p. 26). Their report may have more to say on federal aid for Feather River.

POLL ON POLICY—As the new session of Congress again faces the dilemma of drafting legislation for a major federal highway program (page 25), the U. S. Chamber of Commerce joins the long list of organizations that have been wrestling with the problem of what stand to take on the controversial issues involved in financing a multi-billion dollar roadbuilding effort. It is taking a nationwide poll of its affiliated chambers and trade and professional groups to determine whether they favor a proposed new policy, calling for increased federal aid. The chamber's present policy supports a 60-40 ratio for federal-state financing of the program.



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ARMCO FLEX-BEAM GUARDRAIL

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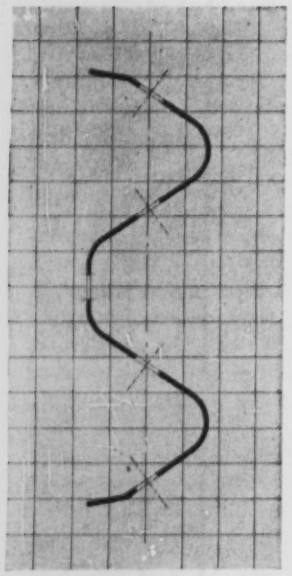

Important new design changes now make Armco FLEX-BEAM Guardrail even better than before. Extra strength and greater safety have been added to the features that won wide acceptance for FLEX-BEAM from the time it was introduced in 1939. These include high beam strength, controlled flexibility, simplicity and speed of installation, high visibility and low-cost maintenance.

MORE STRENGTH

Eight sturdy bolts plus a proved FLEX-BEAM lap splice extend beam strength through the joints to make a uniformly sturdy installation. Bolt holes have been moved to the neutral axis of the section, improving tensile strength of the joint.

GREATER SAFETY

Top and bottom edges of new Armco FLEX-BEAM are turned away from traffic. There is nothing to break the smooth rail face and provide a traffic hazard. Also important, the wide center corrugation matches modern auto bumper designs to help control colliding vehicles.

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Armco FLEX-BEAM Guardrail

WASHINGTON OBSERVER

Eisenhower's top officials concerned with construction see a good year ahead. In general, they feel that on the basis of their record to date they can successfully cope with the pressures of a Democratically-controlled, election-minded Congress.

The Army Engineers are already enjoying a high rating. Congress last year, gave the Engineers about 100 new rivers and harbors projects the Administration didn't ask for. Their prestige was boosted further by their work during the New England floods. And they are ready with plans for flood-control projects that can go under construction as soon as Congress votes the money.

•

Reclamation Bureau got money for 10 new starts from Congress. Officials are backed solidly by the White House for starts on such big new projects as Upper Colorado and Fryingpan-Arkansas. Republican re-organization of the bureau hasn't given Westerners as much freedom from Washington as they wanted—but neither has Commissioner Dexheimer, a career official, shaken personnel up as much as the staff feared.

Bureau of Public Roads has a big year ahead. Dropping of the proposal for a new highway building corporation leaves the bureau as the top roads agency.

•

Housing officials are more or less in the shadow of the Administration's money policies—which lately have been severely attacked by homebuilders and lenders as too restrictive for the industry's and the country's good.

Housing chief Cole's basic problem now is to keep housing starts up—to make sure that the fears of a significant decline don't prove to be true.

•

White House special assistant John S. Bragdon is settling into his niche. He's filled out the staff to handle the new job he got last summer: Co-ordinator of Public Works Planning.

So far, construction agencies aren't complaining of the thing they feared when the job was created: that the co-ordinator would limit their freedom of maneuver in protecting their own positions on various issues. Bragdon's shop hasn't yet become what the Hoover Commission recommended: a board of review to pass on all federal public works for the President. Instead, the co-ordinator's office is assembling data and stimulating state and local public works planning.

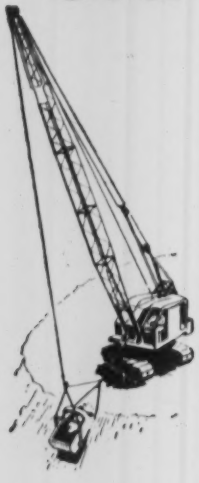
•

The Democratic bigwigs in Congress still hope to wring some votes out of the Administration's record on construction. **Speaker Rayburn and Senate Leader Johnson will be in charge** of the over-all strategy, with the key chairmen working hand-in-glove to dig up material for headlines that may swing votes. **They will talk about business influence on the Administration.** For instance, they'll keep touching on the resignation of Peter A. Strobel as Commissioner of Public Buildings. **Congressman Fallon will be a key man on highway legislation**—along with Congressman Wilbur Mills of the House Ways and Means Committee. But they'll have more trouble eking out political advantages because they go along with the Administration's basic position that the additional spending shouldn't add to the deficit. **Sen. Morse and other Western Democrats will hit public works** policies on such things as Hells Canyon and local partnership policy.

The Dixon-Yates deal will be handled by Sen. Anderson, mainly. As Chairman of the Joint Atomic Energy Committee, Anderson also will have a lot to say about the Administration's record in regard to expediting the industrial use of the government's atomic know-how.

Shovel-Crane owners!

sharing your profits with old-fashioned clutches?



Remember the day the weather was fine, footing good and the haulers were really rolling...

THAT was the day you thought the job was going to move out ahead of schedule. But the clutches were getting hotter all the time. By mid-morning the dragline went down for clutch adjustment—the heat had done it. After the noon break, the same thing happened. How much production do you figure you were penalized for having a rig with old-fashioned clutches?

Avoid costly downtime

With a Link-Belt Speeder you get modern power, hydraulic-actuated clutches that automatically compensate for heat and normal lining wear. In fact, most Link-Belt Speeder owners will tell you these clutches are so good, adjustment is needed only once or twice a month.

It's just one of many ways you're big money ahead with a Link-Belt Speeder.

Get the complete story from your distributor. He'll show that whatever rigs you need—crawler or rubber-tired . . . ½ to 3-yd, 8 to 60-ton capacity—you'll earn bigger return on your equipment dollars with a Link-Belt Speeder. Or write for literature—LINK-BELT SPEEDER CORPORATION, CEDAR RAPIDS, IOWA.

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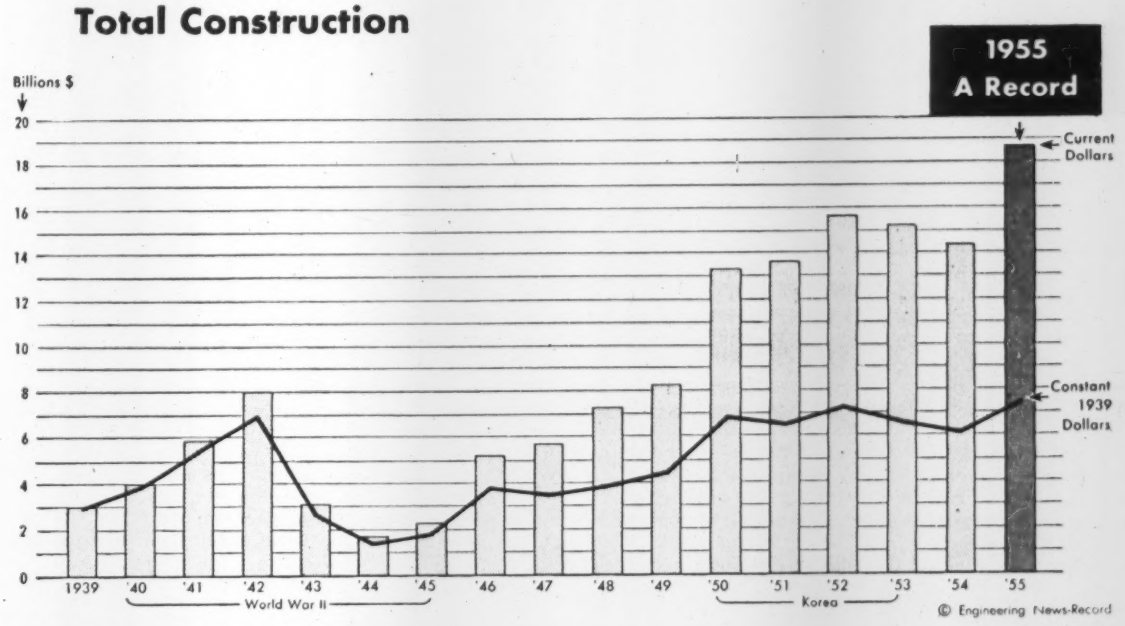


Regional Inventory Shows a Busy 1956

Superlatives came easily last week for the construction industry as 1955 went into the record books as the biggest year in history for dollar value of contract awards.

To put icing on the cake, an ENR survey shows that for most sections of the nation, prospects are bright for an even bigger year in '56.

With the final figures in, contract awards for heavy construction added up to a record $18.7 billion for 1955, up an incredible 30% over booming '54, and 19% above the previous all-time high, set in 1952.

In some types of construction, gains over 1954 bordered on the fantastic. Contracts for earthwork and waterways skyrocketed 61% to $546 million. Private industrial building zoomed up 57% to reach a total just under $3 billion. And, private mass housing contracts jumped 45% to total more than $6.1 billion.

Dollar value of waterworks contracts was up 28% for a total of $314 million, setting a new record. Sewerage awards rose a moderate 4% to $402 million. Highways—a major category—increased 11% to reach a total of more than $2.1 billion, and bridge awards advanced 7% to $545 million.

Commercial building contracts climbed 17% to a new all-time high of nearly $1.7 billion, sparked by the continued boom in shopping centers.

The only soft spot in construction in '55 was in public building. Public housing dipped 3% while other types of public buildings were off a slight 1%. School contracts were disappointing, only about 1% above the 1954 volume.

Overall, the boom atop a boom in the construction industry in '55 was an amazing performance. To answer the question, "Where do we go from here?", ENR last week queried correspondents in every region of the U. S. Their answers indicate that 1956 probably will be even more spectacular than '55.

Here's how the construction prospects for '56 shape up in various areas.

New England

Executives are predicting construction will have a better year for both industrial and commercial building. They expect the dollar volume to go up, but point out that the number of units built may be the same as '55 or even less. The reason: higher construction costs anticipated by many.

There are some really big projects in the offing in New England. Cabot, Cabot & Forbes, Inc., of Boston, has outlined plans for building $100 million worth of new plants in New England, some near Hartford, Conn., more along Massachusetts Route 128. Many of the contracts will be awarded in 1956.

Great Northern Paper Co. has plans for a $45-million expansion program in Maine, part of a 10-year, $150-million program.

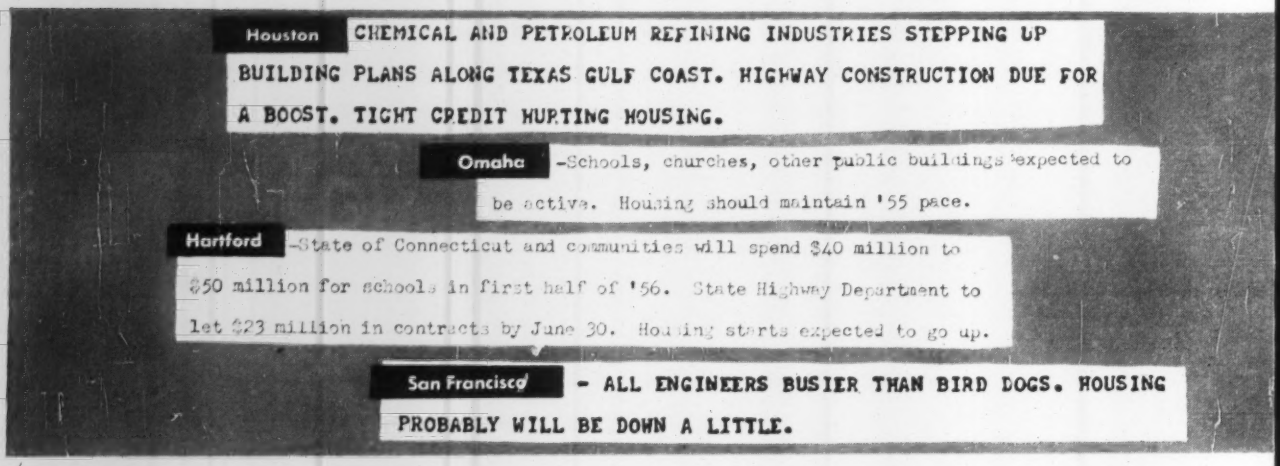
Connecticut reports plans for expansion in industries ranging from silver and electronics to machine tools. Thirty industries already are committed to industrial building plans in '56 in the Nutmeg State.

In Maine, Central Maine Power Co. has $20 million worth of projects planned for Cousin's Islands.

At Portsmouth, Rhode Island, a permit has been granted to build a $35-million oil refinery. This project has been delayed by litigation but it is now expected that bids will be called early in '56.

In Boston, many believe that the number of housing starts will be down in '56 but the dollar volume will be up. Suburban areas have mushroomed so rapidly that land is now scarce. Many communities have increased

. . . The score by regions shows a few soft spots, but the trend is


Houston
CHEMICAL AND PETROLEUM REFINING INDUSTRIES STEPPING UP BUILDING PLANS ALONG TEXAS GULF COAST. HIGHWAY CONSTRUCTION DUE FOR A BOOST. TIGHT CREDIT HURTING HOUSING.
Omaha
-Schools, churches, other public buildings expected to be active. Housing should maintain '55 pace.
Hartford
-State of Connecticut and communities will spend $40 million to $50 million for schools in first half of '56. State Highway Department to let $23 million in contracts by June 30. Housing starts expected to go up.
San Francisco
- ALL ENGINEERS BUSIER THAN BIRD DOGS. HOUSING PROBABLY WILL BE DOWN A LITTLE.

minimum lot sizes to slow down the construction of project homes. This has increased land costs and is forcing homebuilders to turn to larger, more expensive houses.

There is one cloud on the construction horizon in New England. Many executives are worried about construction costs. They feel their new plants cost them too much, and also feel that costs are forcing housing prices out of line.

Hugh Gregg, president of the New England Council, places a large part of the responsibility for continued construction prosperity on construction research. Gregg feels that if research cannot lick the cost problem, the boom could end abruptly, even though the need for construction is great in New England.

Middle Atlantic

A record-breaking year for construction is freely predicted in the Greater Philadelphia area, eastern Pennsylvania, south Jersey and Delaware. One reason for the optimism is that for the first time the entire area is assured of labor peace for a full year. Nearly all building trades contracts run through '56 and into the spring of '57.

With an eye on materials shortages (which they think will be licked) and credit (which they think will be eased), homebuilders in the area say privately they are going ahead with the most optimistic plans in years.

Informed observers estimate that homebuilding in eastern Pennsylvania, Delaware, and south Jersey (from Trenton down to Cape May) will add up to at least $400 million in 1956.

The Levitt organization is the sparkplug for much of this housing boom. The firm expects to complete Levittown, Pa., with 4,000 homes at a cost of $50 million. Reports also say a start will be made on the new Levittown planned in Burlington County, N. J. This will be a 10,000-home, $150-million project. The proposed New Jersey Levittown has touched off a building boom throughout the general area.

But other homebuilders also are operating on a large scale. For example, Moss Brothers have started work on a $40-million housing project at Hampton Lakes in Burlington County, N. J.

Industrial building also offers bright prospects for contractors in '56. Firms in the Greater Philadelphia area already have blueprinted some $288 million in new industrial plants for 1956. The total is certain to grow in the months ahead as more firms announce plans. But some of the expansion goals already are posted.

Philadelphia Electric Co. will spend $60 million for expansion in '56.

Bell Telephone has $42 million in construction expenditures tabbed for the year with about $5 million of the sum to be spent by its Delaware subsidiary, Diamond State Telephone Co., mostly in New Castle County, Del.

Atlantic City Electric Co. will spend $30 million for improvements throughout Atlantic and Cape May Counties in southeast New Jersey.

Delaware comes up with one of the biggest industrial projects of all. Tidewater Associated Oil Co., building a $125-million oil refinery at Delaware City, Del., has nearly $100 million of the work earmarked for the contract stage in '56.

Eastern Pennsylvania also contributes to the wave of industrial expansion. For example, Lukens Steel Co., at Coatesville, will spend $31 million for new plants and improvements to existing facilities.

The on-again, off-again, $100-million food distribution center slated for southeast Philadelphia seems certain now to go ahead in '56 (ENR Oct. 20, 1955, p. 26). This will give a new lease on life to the commercial building field in the area.

And, there is no shortage of plans for new office buildings. Matthew McCloskey will build a $20-million Transportation Center with a 16-story tower in Philadelphia's mid-town Penn Plaza Center.

Many of the office buildings now on the drawing boards are in the fringe areas of Philadelphia near transportation such as the Schuylkill Expressway.

Philadelphia's Chinese Wall, long a barrier to new construction, is now gone. And the Market Street subway is being raced from 30th St. to a point near 46th St. These two factors have opened up new opportunities for commercial and residential developments along the wide Pennsylvania Blvd.

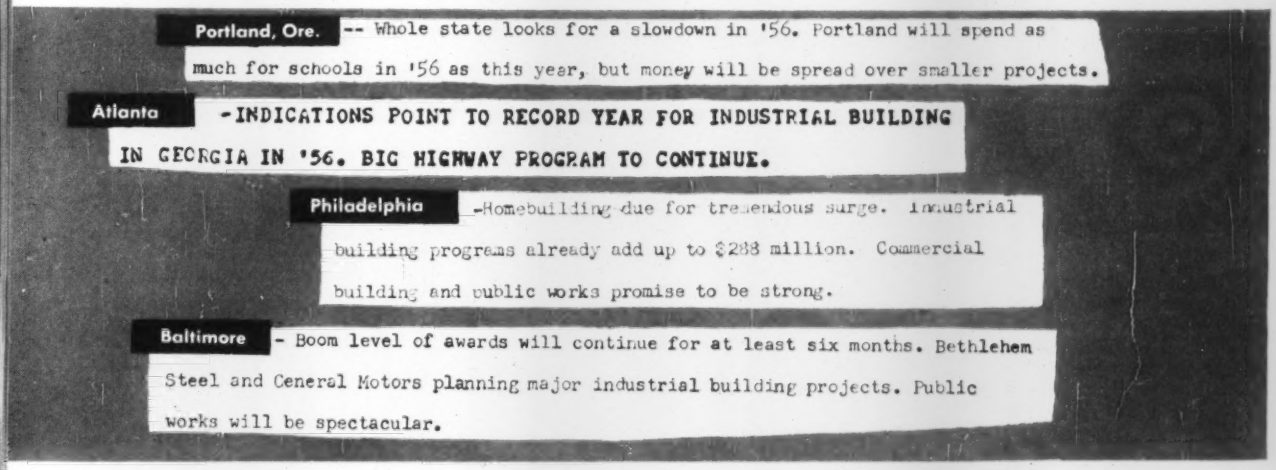
In addition to the Pennsylvania Blvd. development, up to $10 million will be spent to complete the Schuylkill Expressway down to Vine St. in mid-town Philadelphia. This includes four bridges and a $5-million paving project.

The city also has an $80-million capital improvements program with some $34 million earmarked for water and sewer facilities. Another $8 million will go for streets and highways.

Pittsburgh and western Pennsylvania, clouded by a construction recession in recent months, look for a silver lining in '56.

Already set for construction this year are an $88-million Allegheny County Sanitary Authority program,

s overwhelmingly upward


Portland, Ore. -- Whole state looks for a slowdown in '56. Portland will spend as much for schools in '56 as this year, but money will be spread over smaller projects.
Atlanta -INDICATIONS POINT TO RECORD YEAR FOR INDUSTRIAL BUILDING IN GEORGIA IN '56. BIG HIGHWAY PROGRAM TO CONTINUE.
Philadelphia -Homebuilding due for tremendous surge. Industrial building programs already add up to $288 million. Commercial building and public works promise to be strong.
Baltimore - Boom level of awards will continue for at least six months. Bethlehem Steel and General Motors planning major industrial building projects. Public works will be spectacular.

including a sewage treatment plant and interceptor sewers, and a $10-million expansion of military facilities at Greater Pittsburgh Airport.

School construction can become a potent factor in '56. The lower house of the Pennsylvania legislature has voted to raise the ceiling on the State School Building Authority's borrowing power by $500 million. Many school districts have deferred building plans pending action on this measure but could start construction quickly once it is passed.

Several major power projects are in the offing. Cleveland Electric Illuminating Co. has purchased a 100-acre site eight miles upriver from Wheeling, W. Va. for a $10.5-million power station. Ohio Edison Co. is reportedly considering a large power plant near the New Cumberland Dam, and West Penn Power Co. has announced that it hopes to start work early this year on a $25-million power plant near Kitanning, north of Pittsburgh.

Industrial building is a question mark. Plans of 60 firms in the four-county Pittsburgh area to spend $260 million for '56 expansion and $670 million over the next four years were jolted by the proposal of the state legislature to enact a 3½% manufacturers' sales tax. Some of these firms have made it clear that they will not go ahead with their construction plans at this time if the new tax proposal becomes law.

New York State, in addition to its normally large roadbuilding program, also has other major heavy construction work coming up. Some $70 million in contracts will be let this year for the U. S. portion of the St. Lawrence Seaway and $90 million in contracts will be awarded for work on the St. Lawrence power project.

New York City and its suburbs will continue large schoolbuilding programs. And New York's seemingly insatiable demand for more office space is certain to continue the surge of commercial building.

In the southern part of the Middle Atlantic region, the Baltimore boom shows no signs of tapering off. Housing may slide a little because of tighter credit, but non-residential construction is expected to get bigger.

Bethlehem Steel is moving ahead with its $100-million expansion program launched at Sparrows Point and there are persistent reports that more Bethlehem expansion is planned.

But it is in the public works field where the biggest developments are expected. Baltimore will start work on three initial projects in the $70-million Jones Falls Expressway program. And, the state government expects to award contracts for its $11-million office center on the fringe of Baltimore in April or May.

Work on the $130-million Baltimore Harbor Tunnel will move ahead quickly because most of the contracts already have been awarded or advertised. In addition, the state highway program will proceed at a $25-million-a-year pace.

South

The South is confident that construction will maintain its brisk pace and possibly even increase in the first six months of '56. That's the consensus from Alabama, Georgia, Mississippi, Louisiana and North Carolina. Tennessee's outlook is "reasonably good." The only gloomy note comes from Florida where some experts feel that tight money may hold back new projects.

Industrial building is the bullish influence in the South. Alabama, Kentucky, Louisiana, Mississippi and North Carolina are counting heavily on industrial building to keep overall construction even with '55 or above. Memphis, Tenn., is booming with new plants.

In Atlanta, Ga., homebuilders are optimistic and some leading builders are planning to step up operations next year.

But housing prospects aren't as bright in Florida. Speculative homebuilding is declining because of tight credit and higher prices.

Alabama expects a record year for industrial building. Suburban shopping centers should have a banner year in the Montgomery area. But office building and other commercial building will be "light to moderate."

In Louisiana, Kaiser Aluminum & Chemical Corp. will start work this spring on its $60-million alumina plant at Gramercy. A pair of $25-million shopping centers will be built in New Orleans. The city will advertise for bids this month for two wharves costing $4 million to $5 million, first items of a $60-million, 10-year port program and a five-year improvement program will get under way at Moisant International Airport.

North Carolina contractors are betting that the current boom will be under full sail in '56. Some expect a 5% boost in overall volume. But there's an "if"—the steel shortage.

Industrial plants are springing up in Florida almost overnight. Many of them are small. But one big project coming along is a $25-million newsprint mill to be built at Palatka by Hudson Pulp & Paper Corp.

Tennessee has some king-size projects on the boards for '56. Memphis has let initial contracts on generators for its steam power plant. Originally,

it was estimated that the plant would cost $100 million. Now estimates run as high as $140 million.

Alabama's industrial building prospects are good, one of the top projects will be American Machine & Foundry Co.'s $40-million underground plant at Huntsville. Construction plans aren't definite but the company already has taken an option on 2,000 acres on Green Mountain.

Middle West

Some sections of the Middle West expect the first three months of '56 to run slightly under '55. After that, they look for a fast pickup and a really good year for construction.

Indiana anticipates a 5% gain over '55 in the first six months of '56.

The Indiana State Highway Department will let contracts for $33.6 million for new roads and bridges in the next eight months.

In northern Ohio, the general feeling is that '56 will be slightly better than '55, with industrial building a strong factor.

Biggest industrial building project definitely heading for the contract stage is the $85 million Chrysler Corp. automotive parts stamping plant which will be built at Twinsburg, Ohio, a township located between Akron and Cleveland.

But in the Cincinnati and southern Ohio areas, while the general outlook for construction is good, some downturn is expected in industrial building. More money will be spent for plant equipment, observers feel. Some Cincinnati firms are shying away from expansion at this time because of high building costs and land costs.

Sparked by the Motor City, Michigan is getting set for a new round of industrial expansion. Detroit is undergoing extensive plastic surgery. Two of the city's slum districts—Gratiot Ave. and Michigan Ave.—are being razed and rebuilt. The riverfront area is being uprooted to make way for the Civic Center and the Convention Hall.

Schools and highways also are big factors in Michigan's construction outlook. Total state-wide public and parochial school construction will run at least $50 million. And, highway expenditures will be swollen by contracts for the $164-million Rockwood to Saginaw turnpike.

Wisconsin is hoping for a slight loosening on the belt during the coming months on home loans from savings and loan associations.

Wisconsin's State Highway Commission has a record-breaking 1956 roadbuilding program of $106 million scheduled, with some bids being taken now.

In the Chicago area, U. S. Steel Corp. plans to increase its ingot capacity by 1,500,000 tons annually, for what will be the biggest single industrial project.

West of Mississippi

The active West of the Mississippi region is flexing its muscles for another big construction year in '56. Colorado, Texas, Nebraska, Iowa and Missouri are optimistic. Wyoming is wary.

Colorado, particularly Denver, sees a good six months ahead. A sharp drop in homebuilding in the last four months of '55 was blamed on tighter VA and FHA credit restrictions. But with an election year at hand, the feeling is general that credit will be relaxed and homebuilding will snap back to previous levels.

Air Force Academy construction probably will hit full stride this year. This will stimulate other construction in the Colorado Springs area.

Nebraska contractors say that 1956 construction will maintain the record-breaking pace set in the first half of '55. Institutional and public buildings are expected to be active categories.

The Omaha district office of the Army Engineers plans to let contracts totaling $41 million in the next six months. This is for both military and civil construction with the bulk of it in North and South Dakota.

Iowa construction volume should set new records in most fields in '56. The scorecard will look something like this, according to Kenneth Lewis, executive secretary of the Master Builders of Iowa: Private industrial, up 10% to 15%; private commercial, up 10%. Private non-residential (churches, schools, hospitals) breaks down this way: Churches, up 15% to 20%; schools, up 5% to 10%; and hospitals, down 2% to 5%. Public utility construction should be up 5% and public schools will be 8% to 10% higher than in '55. Public hospitals will be down 2%.

The Texas roadbuilding and industrial building booms are riding high. But housing has taken a nosedive and probably won't recover too much in the first six months of '56.

Because of the cooperation of the voters in last November's bond elections, contractors in Missouri have a bright future as St. Louis sets out in '56 to become the showplace of the Show Me State. The bond issues included $110.6 million for St. Louis general improvements and a total of $56 million for city schools.

Housing in the St. Louis area could run above the high 1955 level, builders say. But they include some substantial hedges. Chances are good that starts will match last year's mark.

Far West

California and Arizona have the brightest construction prospects in the Far West. Washington expects an increase in public works, while in Oregon things "look slow" to contractors and architects.

California is in for a record roadbuilding year ($130 million excluding engineering and right-of-way costs). Freeways and expressways in metropolitan areas like Los Angeles, Oakland, San Francisco and San Diego will play an important role.

All major types of construction except housing appear headed for a big year in Los Angeles. Industrial building is particularly promising with a number of expansion plans announced for the auto and aircraft industries.

School building will continue to boom and other public works construction also shapes up well. The Navy will spend $20 million in southern California and $25 million worth of work is earmarked for Edwards Air Force Base.

Los Angeles housing could dip 10%, according to some observers. But there's no general agreement on this. For example, a survey just completed by the building contractors of California shows a 21% increase in plans.

San Francisco contractors say there's plenty of new business coming along—but it's too competitive. Industrial building looks promising for the San Francisco Bay area in particular and northern California in general.

Two big shopping centers are coming along, a $19-million project at Hayward, and a $25-million Bayfair project in Oakland.

Oregon "looks slow" for early '56. Highway work will be far off the pace of the past five years. Only $8 million is currently "firm" for '56 as against $30 million in '55.

Largest single job in prospect is Harvey Machine Co.'s $65-million aluminum reduction mill near the Dalles Dam, on the Columbia River.

Grant County Public Utility District expects to take bids soon on the first of two hydroelectric dams in its $349-million Priest Rapids project.

Most of the Washington State industrial plants planned for '56 are small. Biggest ones include a $20-million ammonia plant in the Pasco area, and a $10-million refinery at Tacoma.

There's a boom in shopping center construction. Biggest project is a $40-million center in Redmond in the Seattle area.

Construction of offices and other stores is expected to be light in '56.

Highway Program Faces Election Year

Likely outcome is a two-year extension of present federal aid but with funds upped to $1 billion, or perhaps more

Despite Administration acceptance of the Democratic pay-as-you-go principle, hopes for enactment of a major highway program during this session of Congress look uncertain. The reason: Congressional reluctance to vote additional taxes in an election year.

Congress could easily postpone the issue by passing a two-year extension of regular federal aid, with an increase of the present $875 million per year to $1 billion or more. Members, with the November elections in view, may well conclude that it is safer to support this conventional legislation, requiring no added taxes.

Some kind of highway legislation must be passed this year. The present federal-aid authorization runs only to June 30, 1958, and state legislatures have to know by next January what federal funds will be coming to their states in the following fiscal year. An ordinary federal-aid bill would answer that need.

Some Congressional highway leaders are planning legislative moves that would make it easier for Congress to compromise on a short-term stopgap measure. Chairman George H. Fallon of the House Roads Subcommittee, who pushed the big pay-as-you-go bill that lost in a floor vote near the end of the last session, said last week that he will ask his group to approve splitting the highway package into two parts—a long-range interstate authorization and a short-term bill in the regular federal-aid pattern.

Fallon planned to introduce both bills for consideration, in the avowed belief that separating the two would aid passage of the interstate program. Most proponents of the interstate measure, however, take the opposite view. They say that dividing federal-aid highway legislation invites defeat of the interstate measure.

Top Congressional leaders had not yet conferred on the Fallon strategy last week. Fallon, however, said that leaders of both parties could decide the best procedure to follow after the separate bills had been introduced. If a single measure seems better, the two bills could be combined in committee.

One legislative move already had been approved by House Speaker Sam Rayburn. This plan calls for the House, Ways and Means Committee to write the tax measure that would bring in additional highway user revenues to finance the big program. Last year's Fallon bill failed in large part because the tax provisions had been hastily drafted by the Roads Subcommittee and approved by the Public Works Committee, with the customary tax-writing group giving its grudging consent to this irregular procedure.

This time, the proper committee will prepare the tax bill. And the tax measure will be incorporated in the interstate authorization bill after both pieces of legislation have been reported to the House. That, at least, is the plan.

Writing of a tax bill can take a long time. The Ways and Means Committee will have to hold extensive hearings. One of its sources of information will be the Bureau of Public Roads, which has been amassing data in response to a Fallon request for guidance on equitable distribution of highway costs among various classes of vehicles.

BPR can give no single, definitive answer to that question, because no universally applicable determination can be made.

There are many approaches to the problem of how much more it costs to build a highway that will carry heavy trucks, as compared with a road to be used only by light vehicles. The answers depend on many factors, a number of them variable and indeterminate.

The question always arises whether heavy highways are not necessary for defense, in any case.

What the Ways and Means Committee decides to impose in the way of added taxes will have to be determined on a basis of human judgment as to the best national policy. The truckers, who fought hard against selective increase on diesel fuel and large tires in last year's bill, say now they will accept any tax that is applied uniformly to all vehicles. The committee will have to evaluate the increased cost of building roads for heavy trucks to decide whether the big vehicles should pay more than smaller ones.

Just Turn to the Right At the Blue Landing Light

The developer of a $5.5-million housing project on the outskirts of Spokane, Wash., is catering to a new type of commuter—the businessman who travels by private plane. All 300 homes on the 150-acre site will be built around a 3,200-ft airstrip.

Thirty-four homes will line the wire-enclosed airstrip. The rest of them will be served by hangar space and an air service-station located at one end of the strip.

Homes will range in price from $12,000 to $50,000. Construction of the first one will begin early in January and major work is expected to be under way by spring. Sullivan Paving Co., Spokane, already has started to lay streets and the airstrip under a $225,000 contract.

Army's Mobile Water Plant Removes Radioactivity

A new series of tests has been run on the Army's two-year-old truck-mounted water treatment plant (ENR Sept. 24, 1953, p. 39). Without modification of the original design the plant has been proved capable of taking chemical, biological and radiological-warfare agents out of water.

Parts of Macra and Lodi were flooded And it might be that the floods will ments made will be delivered, and

HARDEST HIT AREAS included Yuba City where failure of Feather River levee (arrow) resulted in flooding of town on Dec. 23; the same break was breached again four days later. However, Yuba City flood saved the larger town of Marysville at left.

$100-Million Floods Strike Western States

The holiday season was neither merry nor happy for thousands in northern California and southern Oregon. Floods resulting from four separate severe rainstorms in less than two weeks made many thousands homeless. Thousands of others gave up their holidays in rescue, rehabilitation and restoration work.

Total damage has not yet been authoritatively assessed but unofficial estimates place it in excess of $100-million. Death toll may near 100.

Some small towns were completely wiped out. And Yuba City, county seat in an important agricultural area, was entirely inundated.

Such completed or existing projects as Shasta, Folsom, Friant and Pine Flat Dams prevented damage to large cities. Pine Flat on the Kings River protected Fresno, Friant reduced San Joaquin River flow. Stockton was only 20% under water, while Shasta on the Sacramento River and Folsom on the American River prevented any appreciable damage to Sacramento. In the latter case, the Shasta reservoir storage went from 1,200,000 acre-ft to 3,600,000 acre-ft during the storms (capacity is 4,500,000 acre-ft). Folsom reservoir storage went from 100,000 acre-ft to 900,000 acre-ft (capacity is 1,000,000 acre-ft).

• **Levee breaks**—Hardest hit areas were Yuba City and surrounding areas in the Sacramento Valley, and Humboldt County on the north coast. A Feather River levee broke near Yuba City on Dec. 23 inundating this town of 15,000 population. The same break was breached again four days later. The Mayor of Yuba City has estimated damage totaling $30 million with 280 homes destroyed. Rehabilitation of the town was hampered by damage to the sewerage and water supply system. National Guard troops are keeping inhabitants from resettling in the town until emergency repairs can be made. Many of the flood deaths occurred at Yuba City.

The Yuba City flood, however, saved the larger town of Marysville just across the river. Marysville had been ordered evacuated on Dec. 22 and many inhabitants had fled to Yuba City. But the levee break reduced pressure on the Marysville dikes. Even so, severe damage to Marysville was prevented only by heroic efforts of an Aviation Engineer Unit from nearby Beale Air Force Base that plugged a gap in the dike.

In addition to Yuba City, the small community of Nicolous was lost, and thousands of acres of farmland were flooded. The water area at Yuba City was 17 miles long and from two to eight miles wide.

Humboldt County on the north coast of California was also hard hit. The Klamath River flood wiped out the small town of Klamath Glen. Redwood Creek flooded to 45,000 cfs, inundating most of the town of Orick and requiring its evacuation. The Eel River flood wiped out the towns of Weott and Pepperwood and severely damaged Scotia and Ferndale. In addition to homes, the floods in this area damaged lumber installations in the redwood and Douglas fir forests.

In the San Joaquin Valley, Visalia was inundated by the Kaweah River.

BRIDGES LOST included one between Marysville and Yuba City (background). Photo was taken after levee break dropped water level in Feather River by 5 ft.

Parts of Maera and Lodi were flooded as was part of Stockton.

In western Nevada the Truckee River flooded part of Reno but not as severely as did the 1950 flood. The Carson River, on the other hand, had a record flood inundating agricultural land in the Carson Valley and part of Gardnerville.

The flooding reached up into southern Oregon where the Umpqua, Rogue and Coquille Rivers—all uncontrolled—went on a rampage. As in the Humboldt County area, damage in Oregon is hard to assess due to failure of normal lines of communication. Landslides in the Coquille Valley claimed six lives. Further north, damage in the Willamette Basin area was reduced by such Corps of Engineers dams at Lookout Point, Dorena and Cottage Grove. These are estimated to have reduced the flood stage at Eugene by 10 ft. Even so Willamette Basin damage is estimated at $13 million.

• **Cause**—The floods were caused by heavy rainfall. Total in the 12-day period from Dec. 15 to Dec. 27 reached as much as 30 in. at some locations, with many coast range and Sierra Nevada stations reporting more than 20 in. One spot in the Eel River Basin had 10 in. over a single 24-hour period. The Sierra runoff was accentuated by the warm rain melting the earlier snow pack that was already in excess of normal to date.

Perhaps the most unusual feature of the rainstorms was the wide area they covered. Previous floods in northern California have been more localized. But this is the first time in modern history that floods have hit the entire northern two-thirds of the state at one time, as well as parts of Oregon and Nevada.

• **Cure**—Existing flood-control facilities prevented well over $100 million in damage. And more could have been saved had authorized projects been completed. But, like the floods last August in New England, much of the damage occurred along smaller water courses where local apathy and indecision have prevented concrete action.

Both state and federal agencies have been studying and planning new works on small and large streams. It is likely that these studies as well as actual construction will be given greater impetus by the floods. Yuba City, for example, would undoubtedly have been saved had Oroville Dam of the Feather River project been in service. This state project is now stymied by lack of decision on financial and water rights aspects of the work. And it might be that the floods will cause federal action to be taken. Congressman Clair Engle, who represents the Sacramento Valley and who is chairman of the House Interior and Insular Affairs Committee, declared himself in favor of federal construction of the project as result of the floods.

• **Reconstruction**—Restoration work started in stricken areas immediately. Under Public Law 875 and under Federal Civil Defense Authority direction, the Corps of Engineers is awarding contracts for emergency channel restoration and debris clearing projects. Field offices have been established at critical points to facilitate such work.

Some important construction jobs were washed out by the floods. Monterey County Flood Control District's Nacimiento Dam project in the Salinas Valley was hit. Contractor Eaton & Smith estimated loss on the $4.3-million job at $500,000. On the Pacific Gas and Electric Co.'s Poe project on the Feather River, Utah Construction Co. and Bates & Rogers were washed out. They had driven 2,000 ft of a 6¼-mi 24-ft-dia power tunnel.

O. G. & E. also reported 13 power plants totaling 300,000 kw capacity out of service. And the Bureau of Reclamation's Folsom power plant was out due to high water.

Highway damage is widespread. In one California county (Siskiyou) alone, 200 mi of roads were washed out as were 30 bridges. The Board of Supervisors estimates it will take $2.5 million for temporary repairs alone.

No Lack of Cement

Indiana toll road will have an adequate supply

There will be adequate supplies of cement available to construct all sections of Indiana's East-West Toll Road of concrete as originally designed. This assurance has been given by the consulting engineers, J. E. Greiner Co., to A. J. Wedeking, executive director of the Indiana Toll Road Commission, who had requested that an investigation of supplies be made.

The Greiner company reported Nov. 29, that the total cement requirements of all contractors have been covered by commitments, with the exception of one who lacked 5,000 bbl. "We feel sure," the report said, "that this can be obtained by diligent efforts on the part of the contractor." According to the Greiner company, the cement manufacturers and the Portland Cement Association have made assurances that "all commitments made will be delivered, and that all commitments made and not shipped during 1955 will be shipped in 1956."

Wedeking had also inquired concerning the possibility of changing some sections to flexible type pavement should cement supplies become scarcer. The consulting engineers recommend against this on the grounds that supplies will be adequate; that changes would not be economical due to necessary revisions in "grading work, utilities, drainage and bridge structures," and that changes would result in delays for design revisions.

The report concludes that "any contractor who reports that he has a shortage of cement should more diligently apply to the various cement manufacturers for his needs."

Faulty Design?

Owner sues designer for grain elevator collapse

A damage suit filed Dec. 22 in Federal District Court, Omaha, Neb., sheds further light on the collapse of a reinforced concrete grain elevator June 12, 1955, at Fargo, N. D. (ENR June 23, 1955, p. 27). It revealed the name of the designer, which was not hitherto known.

The suit was filed by the owner, Joseph Eichinger, against the Fireman's Fund Insurance Co., the Home Insurance Co., and Thomas J. Ryan, of Omaha, doing business as the Ryan Construction Co., the contractor for the grain elevator. The petition declares that: In 1954, Eichinger contracted with Ryan to prepare "proper and sufficient plans and specifications" for building a grain terminal elevator and to supervise and direct its construction. Payment was to be a fixed fee of 10% of the total cost of material, labor and freight.

The petition asks damages from Ryan and the insurance companies totaling $1,002,069.82.

The 800,000-bu elevator was less than one year old when it suddenly collapsed at night. The foundation consisted of interlocked sheetpiles around the perimeter driven to a depth of 18 ft and topped with a 30-in. concrete slab. The superstructure, covering 216x52-ft area, consisted of 20 circular silos, 19 ft in diameter and 120 ft high, and a head house that extended the height to 198 ft.

Shortly after the collapse, the owner expressed the opinion that it was caused by an explosion, whereas an engineer who investigated found evidence of a foundation failure. At the time, the name of the designer was withheld.

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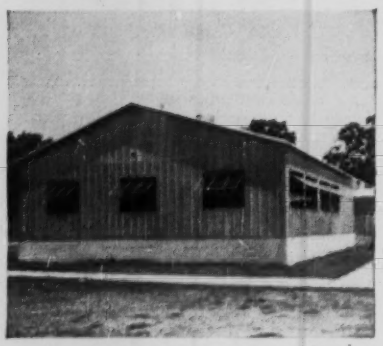

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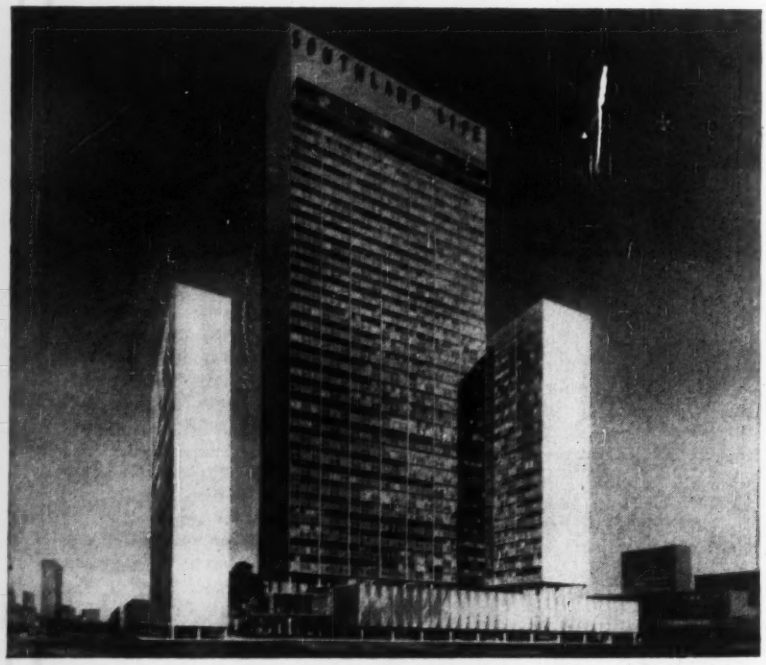


Hotel Is Added to Dallas Center Plans

Plans for Dallas' $40-million downtown development—Southland Center—were advanced five years with the announcement that a 28-story, 600-room luxury hotel will be erected as part of the building group.

Originally, the Southland Life Insurance Co. had planned to start the center with just the construction of its 42-story home office tower which included a five-level, 2,000-car, underground garage plus 173,000 sq ft of retail store facilities. A second tower was planned for construction in about five years and a third in ten years. It is the proposed second tower that the hotel will occupy, and because of this, work on the third tower is expected to start well ahead of schedule. The entire project, when completed, will provide approximately 1,400,000 sq ft of floor space.

The hotel—to be operated by the Sheraton Corporation of America—will connect with the second and third floors of the Southland Life tower and will occupy 175,000 sq ft on those floors. An automobile elevator will operate from street level to the second floor which will be used for lobby and function facilities. The second floor will also contain a 10,500 sq ft ballroom—the largest in Texas.

On December 31, ground was broken for the three-story base structure over which the three towers will rise. Bids are now out for excavation for this block-square substructure. The central and hotel towers are expected to be completed by the spring of 1958.

Architects for the project are Welton Becket & Associates of Los Angeles and Mark Lemmon of Dallas.

Albuquerque Flood Control Plan Nears Final Approval

Directors of the Sandia Conservancy District in Albuquerque, N. M. have approved a master plan for flood control designed to harness arroyo runoff on the flood plain east of the city (ENR Nov. 17, p. 30).

Prior to approval, formal written protests had been entered by owners of only 48 properties out of an estimated 155,000 in the district. Of these, only one objected to the basic features of the $16,503,100 plan; the others protested location of the proposed structures.

The master plan, prepared by two engineering firms—Gordon Herkenhoff & Associates of Albuquerque and Freese & Nichols of Fort Worth, Tex.—now goes to District Court for final approval.

A prime feature of the plan is a pair of huge diversion ditches that will be built east of and parallel to the Rio Grande. These will trap and carry off flood waters that pour down arroyos from the Sandia Mountains to the Rio Grande. The north diversion ditch will be designed to carry about 42,000 cfs; the south, to handle about 20,000 cfs.

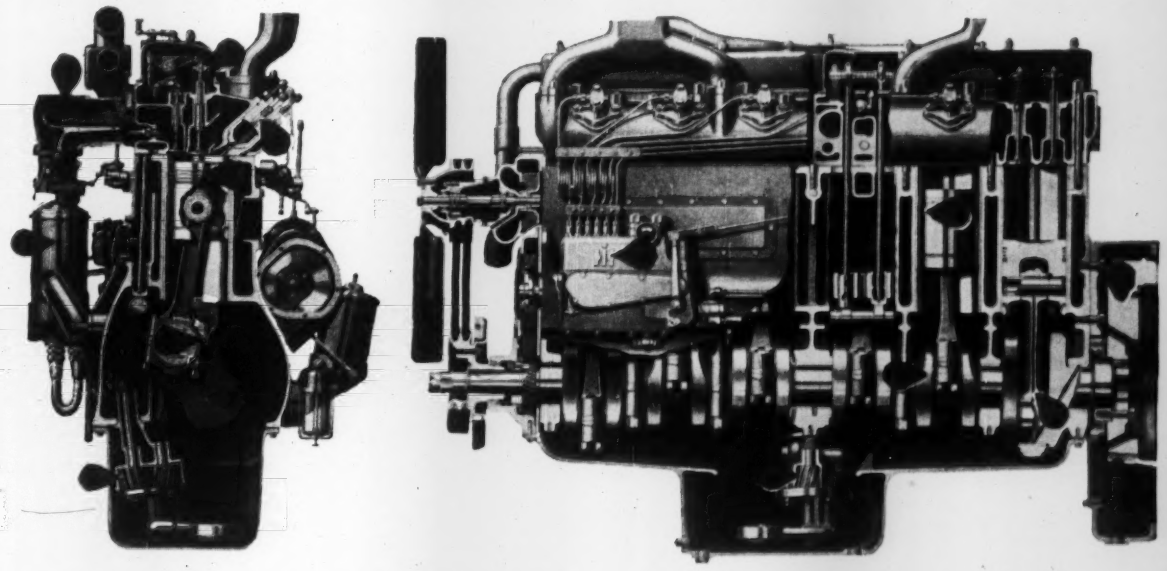
1 FULL FLOW OIL FILTER—Before oil goes under pressure to engine bearings, all harmful particles are removed by replaceable plastic-impregnated, full-flow filters.

2 POSITIVE ROTATORS EXTEND VALVE LIFE. Exhaust valve rotators keep valves turning, at all engine speeds, distributing heat uniformly around the valves to keep deposits from building up on stems and seats, and also to prevent sticking, scuffing, and burning.

3 POSITIVE ALL-WEATHER STARTING. Seconds-fast, International Diesels start in coldest weather on exclusive gasoline starting system. Cylinders are pre-heat conditioned to give complete, clean combustion, instantly, on switching to operation on Diesel fuel.

4 ALUMINUM-ALLOY PISTONS have a thick crown at the top for rapid dissipation of excess heat direct to the cooling water. Hardened, replaceable, cylinder sleeves, three compression rings, with top ring chrome-plated, plus two oil control rings assure long-lasting, gas-tight seal for high compression ratios of over 15 to 1 . . . providing top fuel and oil economy.

5 SIMPLE, SINGLE-HOLE, INJECTION NOZZLE and pre-combustion chamber set at 45° angle for smooth, clean combustion of low grade No. 2 fuel oil under all engine speed and load conditions.



6 NEW IH INJECTION PUMP: Single plunger type on four-cylinder models, twin-plungers on six-cylinders . . . provide all cylinders equal amounts of fuel, precisely metered to load, whether for idling, maximum horsepower, or maximum torque under overload. New, harder injection plungers have up to four times longer life.

7 HEAVY-DUTY FORGED CRANKSHAFT with large diameter, induction-hardened journals provides long-lasting, wear-resistant bearing surfaces . . . rifle-drilled for full pressure lubrication . . . dynamically balanced for smooth operation.

8 REPLACEABLE TRI-METAL BEARINGS provide precision clearance for full-pressure lubrication and thousands of hours of heavy-duty work. Smooth electroplating of white alloy metal over copper-lead, precision bonded to a steel back, carries heavy loads with minimum friction.

9 FULL-PRESSURE LUBRICATION for long life. Big, gear-type pump delivers oil under controlled pressure through full-flow filters and rifle-drilled passages to main and connecting rod bearings, piston pins, camshaft, timing gears, and valve rocker arms.

10 HEAVY FLYWHEEL helps to maintain uniform speed under widely varying load conditions. Available to match standard makes of clutches, fluid couplings, and torque converters.

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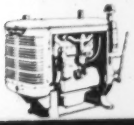
. . . stay on the job with least upkeep

All International engines are built throughout to give you a full measure of power that stands up and stays on the job. They are precision-manufactured of thoroughly tested materials under continuous, quality-control inspection. Pressure lubrication through rifle-drilled crankshafts and internal passages assures trouble free performance. Inbuilt precision is fully protected from dirt and grit under the worst of job operating conditions by the best of fuel, oil, and air filters.

Heavy-duty radiators, power take-offs, and other factory-engineered power unit components are available to fit these long-life, money-saving engines to your job requirements. You can also get them as original equipment in most makes of construction machines. Call your nearest International Industrial Power Distributor or Power Unit Dealer for all the facts.



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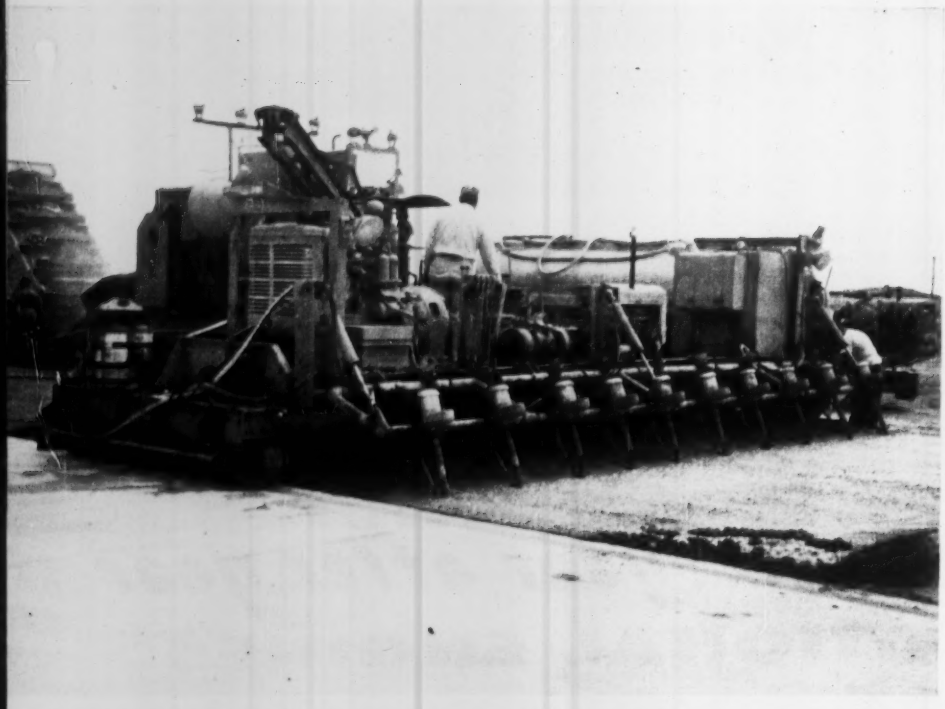
MAKES EVERY LOAD A PAYLOAD

A PICTURE REPORT OF

INTERNATIONAL POWER

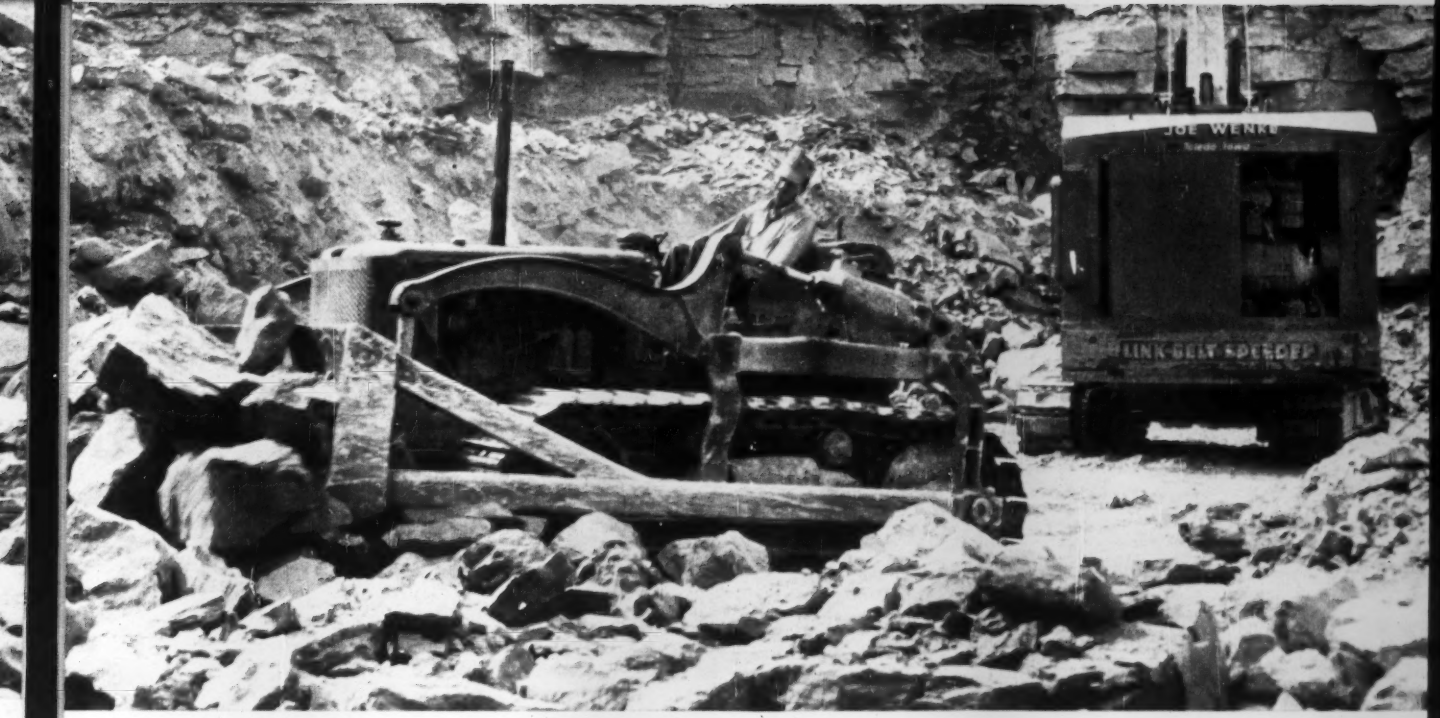
Boosting job production everywhere

Morrison-Knudsen Co. and Landers & Griffin Inc., joint venturers on $17,000,000 Portsmouth (New Hampshire) Air Base, are laying 423,000 cu. yds. of concrete with this spreader. Its 10 International-powered vibrators continuously work a strip 25 ft. wide, 14 inches thick. All concrete is being laid for 200 x 11,620 ft. runway and 1,000 x 8,500 ft. apron. Also on the 5,788,000-yd. job are 6 TD-24 torque converter pushers and 16 self-propelled scrapers. Their output on 10,000-ft. cycles averages 1,400 pay yds. hourly.

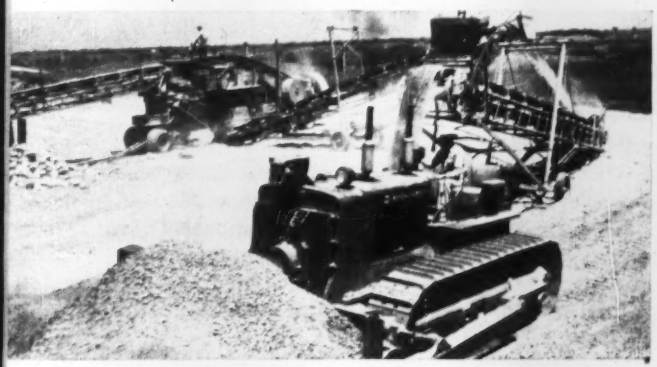


This International "300" tractor is economically doing a job normally assigned a much bigger, more expensive machine . . . moving 1000 cu. yds. Heaping 8 cu. ft. of sandy loam per load, it completes a 100-ft. cycle every 1½ minutes. "300" is building a running track for a school in Greenville, Mississippi, will take 7 to 10 days.

3000-ft. cycle every 3 min. is the record of Western Construction Co's "55" Payscraper. This includes time for TD-24 to push-load 10 pay yds. of ripped caliche. Area, near El Paso, Texas, was once considered too steep and rocky for development. Soon, thanks to International power, it will be graded and terraced for 250 quarter-acre lots.



"Ideal for dozing rock," says Paul Weaver, Supt. for Joe Wenke Quarries, of this veteran TD-14A. "We use it continuously for shovel and quarry-floor cleanup. Performance has been excellent. Downtime is way down, due partly to rugged construction, partly to prompt parts delivery service from our International distributor." Quarry, located at Toledo, Iowa, produces 200 tons of 1-inch road stone per hour.



Fast on job, fast between jobs—Handling all tractor work in a quarry near Denver, Colorado, 200 hp TD-24 saves time by driving job-to-job at 7.8 mph. Output, 2200 tons of $1\frac{1}{4}$-inch stone per 8-hour shift, is taken from crusher by International-powered belt conveyor, background, then stockpiled by TD-24. Unit also does all stripping.

Ripping 150 yds. of concrete in front of a Camden (New Jersey) filling station was a job too tough for a $\frac{3}{4}$-yd. shovel, according to engineers. Al Pangia's International Drott TD-14A, however, did the work unassisted. Unit's tremendous break-out force, 17,000 lbs, broke up the slab . . . even tore out 5-ft. concrete footings.

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makes every load a pay load

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Industrial Power

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"Our TD-14A DROTT rips out CONCRETE SLAB and FOOTINGS a ¾-yard power shovel couldn't touch"

—Pangia Construction Company, Atco, New Jersey

Smack 8-inch-thick slab, or 5-foot-deep footings, of pipe-laced concrete with the 17,000-pound break-out force of an International Drott TD-14A. And something's got to give!

The pictures tell you what gives as this TD-14A Skid-Shovel, owned by Pangia Construction Company, Atco, New Jersey, slams through a 150-cubic yard concrete excavation job—for a new Sinclair station in Camden.

"We are ripping out concrete slab and footings that a ¾-yard power shovel couldn't touch," reports Owner Albert J. Pangia. "The operation is fast because of the breakout action. We use our TD-14A Drott Skid-Shovel for everything."

● Why not size-up these big advantages that give you new loader job range, yardage capacity, and profit opportunities? See your International Drott distributor for a Skid-Shovel or Four-In-One demonstration!

No other loader has it!

Apply the scientific lever principle of *exclusive and patented pry-over-shoe break-out, plus ground-level bucket roll-back.* And an International Drott Skid-Shovel gives you up to three times as much concrete-smashing, frost-breaking, boulder-bucking break-out force as other front-end loaders can deliver. *No other loader even has skid-shoes!*

This great hydraulic pry-out power over big skid-shoes shunts stresses directly into the ground, too —so they can't maul bucket or tractor.

And only an International Drott has the shock-swallowing protection of patented Hydro-Spring—that reduces the effects of carrying, dumping, or other impact forces to *operator* and *tractor* by 67 per cent, or more—increases equipment life by a reported 25 per cent. *Hydro-Spring also eliminates most hydraulic hose failures!*

INTERNATIONAL HARVESTER

INTERNATIONAL® DROTT

Public Building Program Passes the First Hurdle

The Pennsylvania General State Authority has voted to request state legislative approval for a $130-million increase in its borrowing capacity to finance a building program for nine state departments. This would boost the agency's borrowing maximum to $460 million.

One of the major items on the agenda is a $50-million program for construction of mental hospitals and rehabilitation facilities planned by the Welfare Department. Another $17 million is earmarked for new buildings, alterations and additions to Pennsylvania State University.

Other departments to benefit in the over-all program include:

- Public instruction: $9.9 million. Most money will go for building and renovation at State Teachers' College.
- Health: $9.9 million. This will include a new $6-million building at Philadelphia's Lankenau Hospital.
- Justice: $1.9 million for improving penal institutions.
- State police: $2 million for construction of laboratories, garages and barracks.

Parking projects also will come in for a share of the building fund. Some $3.6 million will go toward constructing underground parking facilities at the capital in Harrisburg. And another $525,000 will be used to build an underground garage for the $7.8-million Philadelphia state office project.

Indiana and Kentucky Agree On Location of Toll Bridge

The proposed toll bridge between Louisville, Ky. and New Albany, Ind., has a home at last. After several months of controversy it has been decided to accept the 1952 recommendation of Coverdale & Colpitts, New York consulting engineers, and locate the bridge four or five blocks downstream from the privately-owned Kentucky and Indiana Bridge.

Under an agreement between the two states (ENR Oct. 13, p. 25), Indiana's highway department and Toll Bridge Commission will design, build, maintain and operate the bridge. Kentucky will contribute right-of-way over the Ohio and approaches on it own side of the river.

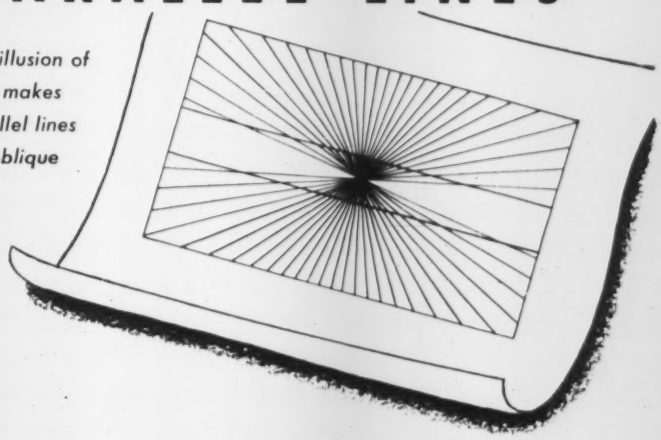
Cost of the bridge is estimated at $11 million. Of this, $5 million will come from federal funds, another $5 million will be derived from a revenue bond issue and $1 million will come from the states in the form of right-of-way and approaches.

Completion of the bridge in 1957 is contemplated.

The Strange Case of the

PARALLEL LINES

Hering's illusion of direction makes two parallel lines appear oblique



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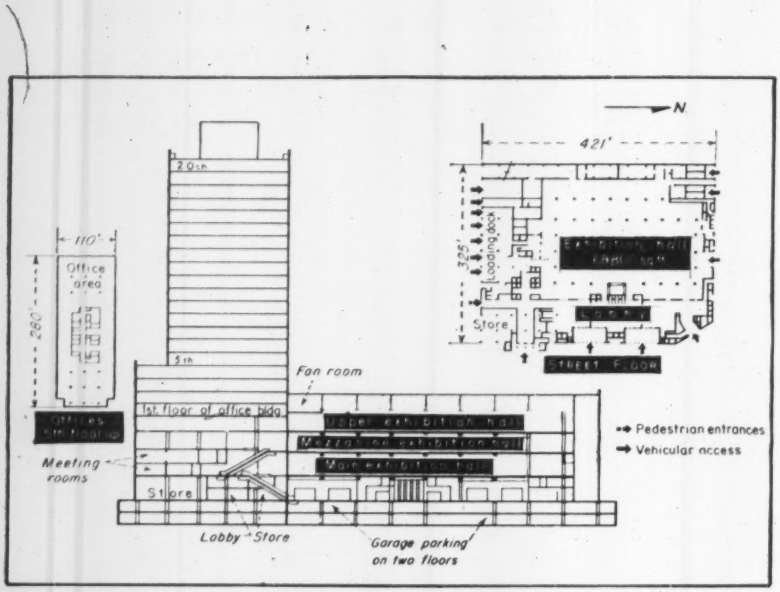
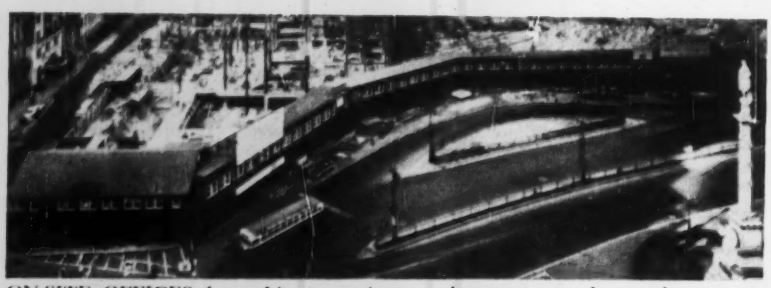
NEW YORK COLISEUM



To draw trade shows—four floors of exhibition space
To meet expenses—20-story tower with offices for rent
To start income quickly—2 years for design and construction

Teamwork Keeps Job on Fast



ON-SITE OFFICES for architects, engineers, subcontractors and general contractor are located on a two-block-long sidewalk bridge.

JOB MEETING attended by subcontractors, designers and general contractor's key personnel is held on the sidewalk bridge every week to solve problems.

For a structure as huge and complex as the $35 million New York Coliseum, a 2-year construction period appears impracticable. Nevertheless, with completion due only a few months from now, it looks like the builders will win their race with the calendar.

You probably will appreciate better what they were up against from the fact that the project required 800 individual drawings and issuance of 60,000 blueprints. And when work started in April, 1954, only preliminary layouts were available; yet, the first exhibition was scheduled to be opened to the public in April, 1956.

Under such conditions, owner, designers and builders had to operate as a closely knit team. Every activity had to be coordinated with every related one. Predictable problems had to be solved or eliminated before they arose. Unforeseen difficulties had to be taken care of immediately upon discovery. Speed was essential—speed in design, in estimating, in construction planning, in purchasing, in delivering materials and equipment, and above all, in erection.

The successful handling of this complex project is a demonstration of

Wide World Photo

Schedule

design and construction management at its best.

• **Nobody wanted to own it**—The New York Coliseum is being built to garner for New York City a bigger share of the nation's trade-show business. Not that the exposition business itself is profitable, but it attracts people who spend freely for lodging, entertainment, service and merchandise while they are in town. Because studies showed that an exhibition hall would not make money, no private agency was willing to build one. To get its coliseum, the city asked the Triborough Bridge and Tunnel Authority to take responsibility for the project.

The TBTA is a non-profit public corporation financed through revenue bonds. It built and operates such toll facilities as the Triborough Bridge, between Manhattan, The Bronx and Queens and the Queens-Midtown Tunnel, between Manhattan and Queens, as well as an airline-bus terminal building on Manhattan's east side and a parking garage at the Battery Tunnel.

• **How to avoid losing money**—Selec-

Why Coliseum Space Will Be in Big Demand

SITE—Base of building, 421 x 325 ft, fronts on Columbus Circle, extends between 58th and 60th St., in the center of Manhattan.

EXHIBITION SPACE—Four floors totalling over 300,000 sq ft can be used separately or together. Street hall, 65,000 sq ft; main hall, 83,000 sq ft; mezzanine hall, 73,000 sq ft; and upper hall, 44,000 sq ft. A 160 x 150-sq ft open well extends from the main floor to roof, with a clear height of 55 ft to roof trusses; ceiling height elsewhere is 20 ft.

OFFICE SPACE—Tower 20 stories high, atop the exhibition building, offers 530,400 sq ft of rentable area. Tower is 110 ft wide, 280 ft long. First floor is 75 ft above street level.

GARAGE—Two basement levels, 310,000 sq ft floor area, 850 cars.

EXTERIOR—Granite base to height of canopies over entrances. Above is dull-glazed brick, dark gray for spandrels, light gray elsewhere, with recessed vertical shafts of striated aluminum.

INTERIOR—In exhibition halls, walls are glazed tile to door height, painted plaster above; floors are concrete seeded with ⅜ in. trap rock and cement, leveled with rotary screed, then ground smooth to form a hard surface with natural color and texture variation. For floors in the office section, cement finish is used on 2 in. of lightweight fill. In garage and ramps, floor surface is monolithic trowel finish with integral hardener.

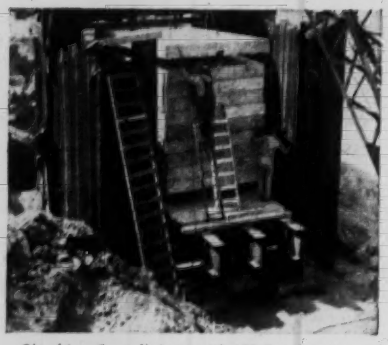
ILLUMINATION—In exhibition halls, variable intensity, indirect fluorescent lighting, plus ceiling spotlights (basic intensity 50 lumens).

VERTICAL TRANSPORTATION—For exhibition halls, nine passenger elevators, some serving the garage, seven moving stairs, five freight elevators. In office building, 14 passenger elevators. Ramps lead from each street to each garage level.

FREIGHT HANDLING—One of the five freight elevators, hydraulic type, has 75,000-lb capacity, with 15 x 50-ft platform—big enough for a trailer truck. Ramp at 12½% grade for any size truck-trailer leads to main exhibition hall 22 ft above the street; 60-ft turnaround clearance provided. Dock 77 ft long for 8 trucks, with adjustable-height platform adjoins elevators at street level for off street loading.

SERVICES—All public space is air conditioned. In exhibition halls, outlets for air, water, gas, drainage, electricity, telephone, TV, radio and microphones every few feet; public address system and refuse chute on every floor.

BIG HEAD START
ON DEADLINE WITH
FOSTER
RENTAL
STEEL—SHEET
PILING



Checking Foundations with 120-Ton Load on H-Bearing Frames Anchored to Foster Piling
Hotel - Department Store - Parking Facility
THE DENVER COLORADO PROJECT

Contractors Webb & Knapp got a *Head Start* on this gigantic project by calling Foster for rental steel-sheet Piling, to complete four sumps (that were holding up the major excavation of this 400-foot square foundation). Foster delivered *on time*, the exact sections and exact lengths of steel-sheet Piling needed to get a head start on work schedules.

Foster 12"x 53 lb. H-Bearing Piles driven an average depth of 50 feet, around perimeter of the gigantic 400 foot excavation.

Whatever You Need in Piling
Call L. B. FOSTER for Service
• STEEL-SHEET PILING • H-BEARING PILES
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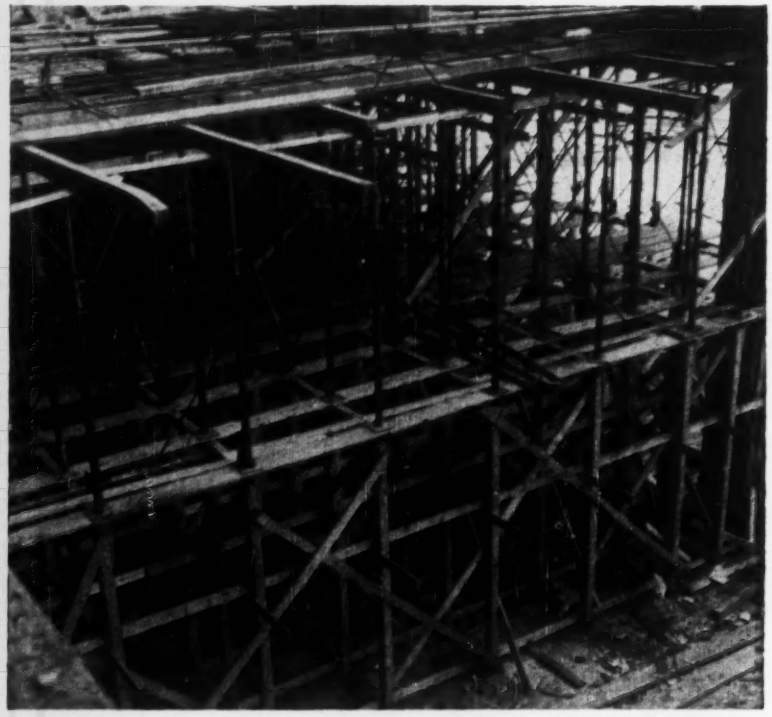
. . . N. Y. Coliseum



SHORES under forms for the main exhibition floor were additionally braced diagonally in two directions after a mishap.

tion of a site for the New York Coliseum on Columbus Circle in the center of Manhattan presented an opportunity to reclaim a slum area. The City of New York obtained a two-block rundown plot by condemnation, assigned 51% of the area for housing (which was sold for private development) and obtained federal aid for the whole redevelopment under Title I of the National Housing Act of 1949. The city retains ownership of the coliseum site, but the TBTA has to pay the city $2,182,230 ($15 per sq ft) for its use. Also, TBTA is obligated to pay the city $42,000 annually in lieu of taxes, plus a sum equal to the amount by which the net revenues from the coliseum in the preceding year are in excess of $1,225,000.

Because it lacks experience and personnel necessary for the successful operation of the facilities, TBTA is leasing them to experienced firms. The exhibition space will bring TBTA a minimum of $300,000 per year plus a graduated percentage of gross income. But this will not be enough to meet expenses.

Since charges for exhibition space are inadequate to cover costs and since the obligations of TBTA to its bondholders prevent it from operating at a loss, the authority had a tough problem on its hands. To make matters worse, the state enabling act required TBTA to provide parking space in the project, which at best would be self-supporting.

The solution finally arrived at was to add office space that could be rented out to provide sufficient supplementary income.

• **Three buildings in one**—So the New York Coliseum actually consists of a four-story exhibition building, 20-story office tower and two-level basement garage.

The exhibition building and garage cover the full 137,000-sq ft site between 58th and 60th St. (59th St. has been eliminated between Columbus Circle and 9th Ave.) The office tower starts about 75 ft above 58th St. and extends up another 235 ft.

All public spaces will be air conditioned, the exhibit areas requiring 2,500 tons of cooling capacity, the offices, 1,550 tons. With the basements serving as a garage, hence, not available as usual for equipment, the cooling tower will be placed on the roof of the exhibition building and the compressors in the office building at about the same level (96 ft above the street). Steam for heating and cooling will be purchased from Consolidated Edison Co. Air conditioning

of the exhibition areas is expected to be a good sales point.

Other services provided in the coliseum also will tend to make its use for trade shows highly desirable. These include outlets for electricity, water, gas and other important items at frequent intervals.

The four-level exhibition building is of two-way reinforced concrete flat-slab construction with steel columns. The 20-story office tower has a structural steel frame and lightweight concrete floors.

• **Plans not done, but work starts**—In March, 1954, with only preliminary layouts for the project available, TBTA awarded a general contract for construction of the coliseum, including demolition of existing structures, to a joint venture of three New York firms—Walsh Construction Co., George A. Fuller Co. and Slattery Contracting Co. The contractor will receive a fixed fee but must guarantee maximum cost. TBTA will receive any savings if costs are less than maximum.

Walsh-Fuller-Slattery established an executive committee consisting of executives of each firm—W. A. Durkin, Lou R. Crandall and J. M. Slattery—to exercise general supervision and set policy. Immediate supervision was made the responsibility of an operating committee of representatives of the firms—D. G. Aronberg, chairman, J. F. Murphy and G. W. Benisch.

While the final plan for the coliseum was being worked out, the contractor prepared budget estimates from the architect's 3/32 in. scale drawings, typical structural designs and outline specifications. When the design was finalized, the budget estimates, which had kept pace with the studies, were made the basis of the contractor's guaranteed maximum cost.

With the contract requiring completion of the exhibition building in two years, the contractor decided the schedule could be met only if construction started while final drawings were being prepared. That meant that the designers and builders had to work together so the final design would be close to the approved small-scale drawings and outline specifications on which the guaranted cost was based. As a result, completion of the project will be 12 months earlier than it would have been if construction had to await the final design before bids were asked.

• **Old skyscraper must go**—A demolition contractor was put to work immediately tearing down existing structures on the site. These were a miscellaneous lot, including 6-story tenements, a theater and a 33-year-old 27-story office building (which could

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THIS ONE DOESN'T WEAR ME DOWN!"
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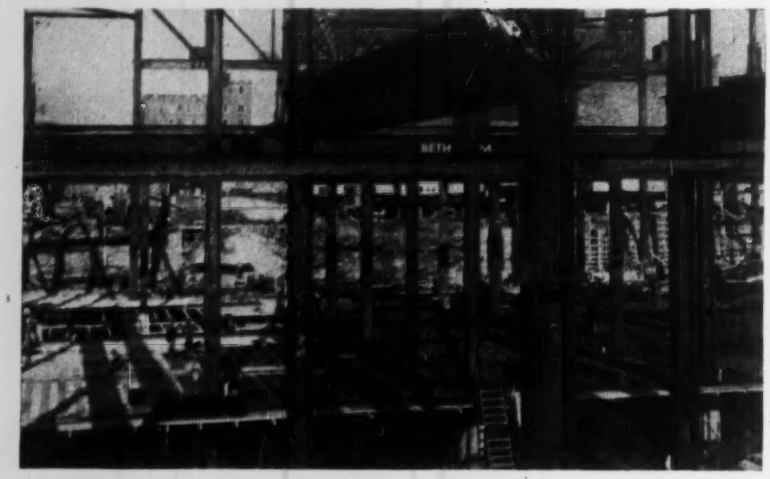
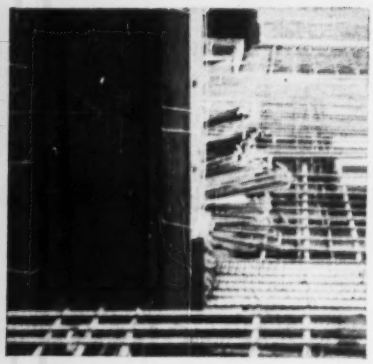
Structural Oddities in the Coliseum



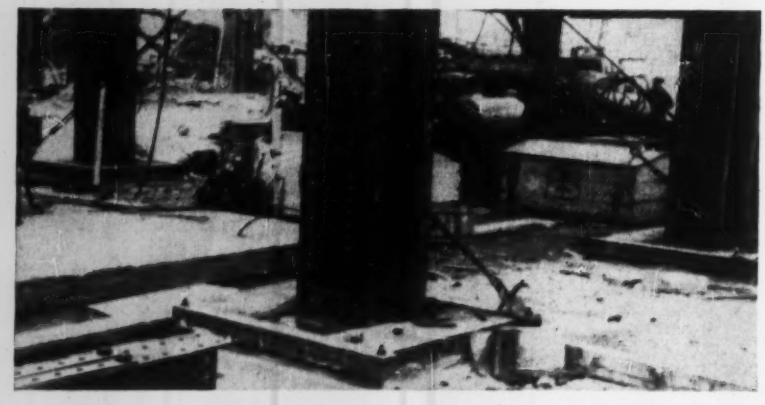
Steel columns

. . . with seats welded on to support the flat-slab concrete floors, were erected in four-story lengths. Horizontal steel beams braced them temporarily. Where spans were twice the usual, double plate girders carry the floors.



To develop frame action

. . . between the concrete floors in the exhibition areas and the steel columns, top reinforcing bars were welded to plates on the column flanges (left). In the other direction, reinforcing bars for the floors were passed through holes in the column webs (right).



Base plates

. . . for columns are held down by angles lapped over the edges and anchored to the concrete footings. With this detail, anchor bolts did not have to be accurately located. This scheme was used because superstructure plans had not been completed when the foundations were constructed. Jacob Feld is the structural engineer.

not be incorporated in the coliseum because of its irregular bays, short spans and low ceilings).

If the tight schedule was to be met, excavation had to follow closely behind demolition. With this in mind, W-F-S divided the site into four parts and made a progress schedule for each section. Demolition of three of the four sections was timed for completion in three months, and the fourth, on which the skyscraper was located, in six months. Excavation started immediately in one, where there were parking lots, and then proceeded successively from section to section.

The need for speed resulted in a

supplementary agreement under which the excavator, having surrounded the old office building removed the bottom section for the demolition subcontractor. Meanwhile, foundation concreting followed on the heels of the excavators, but was kept 100 ft away from any blasting.

Within four months of the start of work, 13,000 tons of structural steel were ordered on a tonnage basis from Bethlehem Steel Co. To speed up delivery, two detail contractors prepared shop details, and the steel company divided fabrication between its Pottstown, Pa., and Bethlehem, Pa., shops. The steel was shipped to a storage area in Jersey City, where it was sorted, and was delivered to the site when needed.

In the meantime, architects and engineers completed plans and specifications that permitted bids to be taken and subcontracts awarded for elevators, plumbing, sprinklers, heating, ventilating, air conditioning, electrical work, superstructure concrete and masonry.

• **Field office for everybody**—To maintain close contact between the designers and the various contractors, a decision was made to put all field offices together on the site. However, the excavation left no room even for the subcontractors' field offices. The best solution appeared to be to put all offices on a sidewalk bridge. Erected along Columbus Circle of prefabricated wood panels, the building turned out to be 360 ft. long and 14 or 32 ft wide.

A large conference room was included at one end. In it, the designers, general contractor and subcontractors met weekly to check on progress, plan ahead, determine what needed expediting, coordinate the trades, settle disagreements and solve problems. Along one wall was a large-scale bar-chart progress schedule, kept up to date, so as to be available at all times.

• **The general erection plan**—The schedule called for erection to start on the base of the office tower in the two southern sections of the site along 58th St. because of the extra time needed for tearing down the old skyscraper in the north corner. When steel reached 162 ft above the street, the steel erectors were scheduled to move to the north section, while concrete floors were placed in the south section. Then, the steel frame of the office tower was to be completed, while the floors in the low north section were concreted.

Meanwhile, the mechanical trades were to run lines below each completed floor. The masons were to en-

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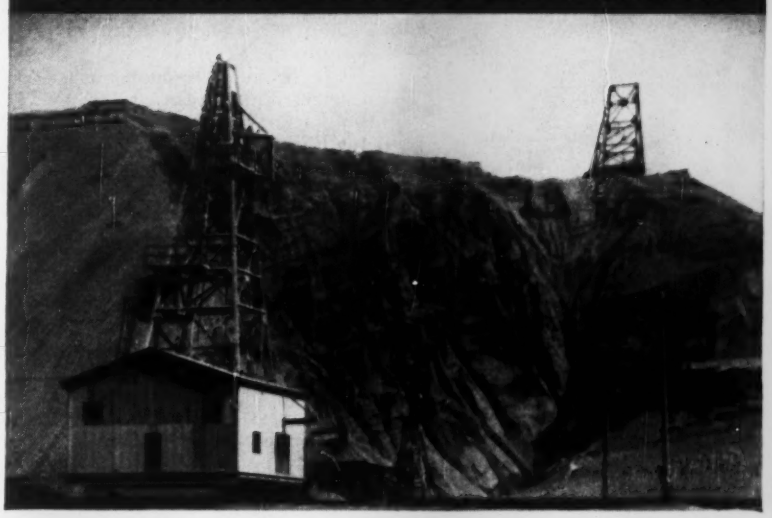

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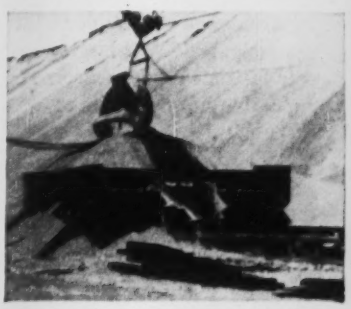
This view gives some conception of the height and steepness of the bank on which the Crescent works.



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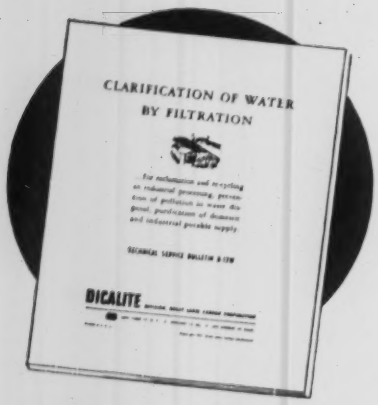

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close the southern half of the building and put in interior partitions. Stairs were to be installed with the floors. And elevators were to be put in as soon as possible for temporary service up to the 62-ft level, so as to be available before work on the office tower required many men.

• **Economical ventilation**—Excavating, totalling 75,000 cu yd of earth and an equal amount of rock—chiefly mica schist—was completed in nine months. This work not only included trenches for drainage pipe but also for a system of large concrete pipe under the cellar-floor. The pipe ranged in size from 24-in. dia to double 84-in. and were laid with tops level. As a result, the same trenches with gravel backfill could also be used for subsoil drainage, the water being carried to sumps in one corner of the site.

Purpose of the concrete pipe is to ventilate both levels of the garage. Air will be moved through risers in the garage, through these pipe and through risers at one corner of the exhibition building to the roof. This ventilating system is estimated to have saved three feet in the height of each story in the basement by eliminating the need for distribution through horizontal ducts.

• **Steel columns carry flat-slabs**—Six months after work started, the first steel was erected. Resting on concrete footings on rock, the bottom tier of columns is seated on steel base plates from 3 to almost 12 in. thick. Column spacing is 29 x 27 ft in the office area, 29 x 31½ ft elsewhere—a compromise, since a 6-ft module is desirable in the exhibition area for booths and an 8-ft module for parking in the garage, while much smaller office bays are generally preferred.

Columns supporting flat-slab concrete floors or concrete beams had brackets shop welded to them at each floor level to take the shears. (Since the columns were to be fireproofed with concrete, the structural engineer preferred to consider them as composite sections, allowing the concrete to carry some of the load. The city building code, however, allows such low stresses for steel in composite sections that more steel would have been required than if the carrying capacity of the concrete is neglected.)

Steel up to 62 ft above the street was placed with crawler cranes. Columns weighing less than 30 tons generally were erected in four-story lengths. They were braced temporarily with steel beams 44 and 88 ft above the base plates. The bracing at each level was removed just before the concrete floor immediately below was formed.

Double plate girders were erected at three levels to span 58- and 63-ft-wide areas in the exhibition halls, where columns were undesirable. And steel trusses about 15 ft deep were placed over a 130-ft open well extending from the main exhibition hall to the roof. Some of these trusses not only support the roof but penthouse machinery rooms as well.

Steel for the office tower was set with three guyed derricks. Coliseum roof trusses, weighing up to 90 tons after assembly at grade, were erected with four derricks, sometimes all working together.

Concrete floors in the exhibition building, designed for live loads of 300 psf in main exhibition areas, have domed undersides to reduce dead weight. Total thickness of the floors varies up to 22 in., the cover over the 8-in.-deep domes ranging from 6 to 14 in. The ribs are spaced 24 in. c-c. Electrical and air-conditioning distribution systems are embedded in the slab. Near columns, a solid slab is used. The undersides will be painted and left exposed to form the ceiling for the story below.

Neither dropped panels nor column capitals are used above the ground floor. Columns in the upper garage, however, have square capitals.

Formwork for exhibition-hall floors consisted of 19 x 19 x 8-in. metal domes set on 18-in.-wide strips of ⅜-in. plywood (Under ducts, domes were 4 in. deep). The pans were held in place with L-shape, twisted-shank nails, one nail at each corner.

• **Mishap delays job**—During concreting of a section of the main exhibition floor last May, the formwork collapsed, killing one man and injuring several others (ENR May 12, p. 23). After an investigation, the New York district attorney reported that the collapse was caused by the failure of the temporary supporting structure under the pressure of a horizontal or oblique thrust on the main exhibition floor. If there had been sufficient diagonal, horizontal and end bracing of the falsework, he said, the collapse could have been prevented or at worst, limited in scope (ENR July 14, p. 23). TBTA engineers say, however, that they are not satisfied with any of the "theories" advanced to explain the failure.

The section of falsework that collapsed had been two tiers high (22 ft), the lower lift having been used as a platform for erecting the upper. Consisting of 4 x 4 wood posts, shores for the lower lift were 2 ft 6 in. c-c in one direction, 4 ft in the other. They were either of one length or two short lengths clamped together. At the top, spanning the 2½ ft between shores,

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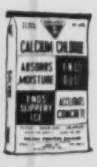

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horizontal 4 x 4's were cleated to them, and over the 4 x 4's, spanning the 4 ft between shores, were placed 1½ x 9-in. wood braces. The shores were further braced at midheight with 1 x 4's in two directions.

The upper tier consisted of adjustable metal shores placed directly over the lower posts and fastened at the base to the 9-in.-wide bracing. At the top, 4 x 6 wood girts spanned the 2½ ft between metal shores and supported 2 x 5-in. wood ribs spaced 10 to 12 in. c-c. These ribs carried the plywood deck and metal domes.

The accident is estimated to have delayed completion of the project about two months.

Shoring used after the collapse was additionally braced diagonally in two directions. All cross members were firmly connected to resist uplift forces as well as downward and shearing loads.

• **Bars bent on site**—Reinforcing bars were stored temporarily in a parking lot nearby that had been rented for the purpose. Bent at the site, bars were tied up in bundles and lifted by crane for placement on the forms. There, they were seated on preformed metal chairs with cadmium-plated legs.

Where the thin ribs of the slab will be subjected to high shears, thin wire stirrups were incorporated to reinforce them. In the vicinity of columns where shear stresses exceeded 100 psi in the solid slab, welded diagonal cages were assembled in two concentric square arrays on the plywood deck to reinforce the floor.

In addition to the reinforcing bars, electric conduits for light and power, drains, water risers, vents, 3 x 4-in. metal ducts for telephone and TV, and 3 x 7-in. metal ducts for water, gas, vacuum and other service connections had to be placed on the forms before concrete was cast. In addition, metal ducts for high-velocity air for heating and cooling had to be set over the shallow domes. These ducts feed into metal expansion chambers, where the air will be slowed down to 600 fpm before discharge into the exhibition halls. Where expansion chambers occur, space was made for them by dropping out four domes.

Concrete was delivered to the job in 7-cu yd truck mixers and hoisted to distributing hoppers above the formwork. It was brought to the forms in 12-cu ft power-driven buggies and vibrated into place. About 500 cu yd were placed per day on the average, with a maximum of 900 cu yd on a few days.

For the exhibition-building slabs, concrete was required to have a 28-day strength of 3,500 psi. For the office tower, concrete was made with an expanded-clay aggregate and had a design strength of 3,000 psi.

Currently, brickwork is substantially completed on the outside of the coliseum and finishing work is well advanced in the interior.

Arthur S. Hodgkiss, assistant general manager of TBTA, is in direct charge of the project for the owner, with J. F. Vermaelen as director of construction and William Wilson as special coordinator. Robert Moses is chairman of TBTA and George E. Spargo, general manager.

Leon and Lionel Levy are the architects, with Eggers & Higgins, Aymar Embury II and John B. Peterkin as consulting architects. Jacob Feld is structural engineer. Guy Panero Associates are the mechanical and electrical engineers.

Key men for W-F-S include D. L. Cowger, project manager; Allen T. Phillips, business manager; John H. Weidman, Jr., project engineer; and Thomas G. Rome and Fred McLaughlin, construction superintendents. Key men for the architects-engineers are G. M. Blom, field supervisor; Irving Rosenfeld, design supervisor; Charles Eicholz, chief architect; Abraham Blumberg, chief design engineer; and Edward C. Sherwood, planning coordinator.

Hurricane Guards Designed Into Norfolk's New Tunnel

To counter the apparent trend toward an increase in hurricane danger in the area, engineers for the Hampton Roads bridge-tunnel have recommended design changes that will add about $650,000 to the cost of the 3½-mi project.

The bridge-tunnel, connecting Norfolk, Va. with Old Point Comfort, will be composed of concrete-pile supported trestles totaling more than 10,000 ft in length, and a 6,900-ft tunnel section anchored to two man-made sand islands (ENR Sept. 15, p. 30).

The New York consulting firm of Parsons, Brinckerhoff, Hall & Macdonald has recommended three "precautionary" additions to protect the tunnel section: a vertical lift gate to close off the tube at each portal; installation of diesel generators to supply emergency power to tunnel drainage pumps; and installation of heavier riprap on South Island—the more exposed of the two sand islands. The engineers commented that such lift gates are not unusual on tunnels of this type (the Pennsylvania Railroad's twin-tube under the Hudson River are provided with gates) although the gates have seldom, if ever, been used.

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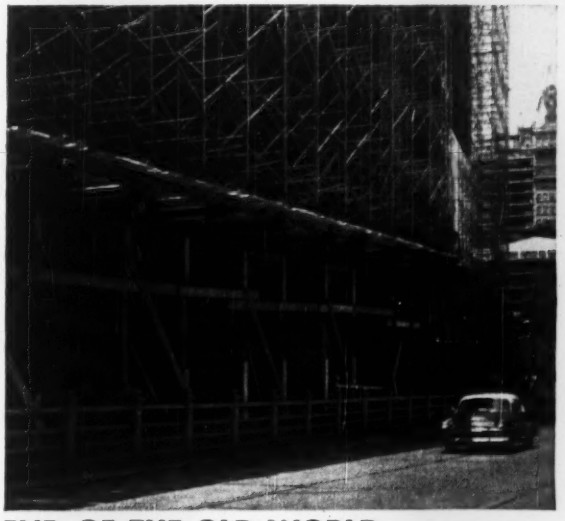
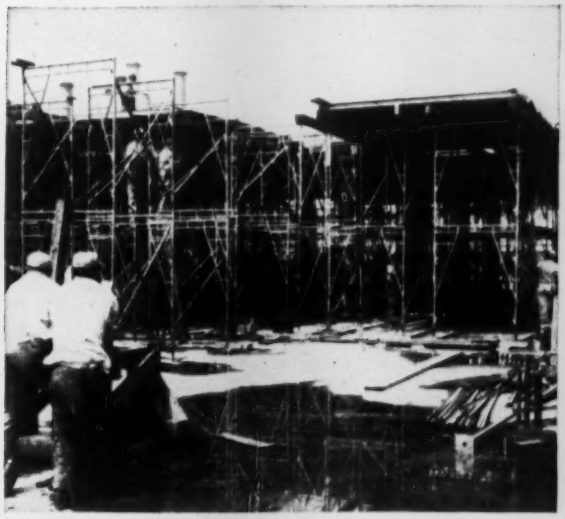
Scaffolding Methods . . . by Patent Scaffolding Co.



END OF THE OLD WORLD—To raze the 13-story Pulitzer building, former home of the old New York World newspaper, more than 3,500 6'6"-high "Trouble Saver"® Sectional Scaffolding frames, spaced 6' apart, were used by Lehigh Salvage Corp. and J. Klotz, Inc. wrecking contractors. Double 8" I-beams, projecting through wall, is the method used to support 89' of the scaffolding adjacent to the busy approach to Brooklyn Bridge.



SLIDING SHORING SYSTEM—Disassembling and reassembling shoring is eliminated by the Wigton-Abbott Corp., Plainfield, N. J., by sliding entire units of the "Trouble Saver" Sectional Shoring on wood sills with a hand winch. Eleven of these shoring units, each covering 720 sq. ft., were slid three times by this method for succeeding concrete pours during construction of the 189' x 231' Monsanto Chemical Co., warehouse, Kearney, N. J.

SUSPENDED FOR BRICK WORK—A 5'-wide working platform is provided for brick masons and materials by "Gold Medal"® Scaffolding Machines while laying up brick veneer on the new 13-story Court House in Tulsa, Okla. Supported by steel I-beams secured to the roof, these suspended machines keep masons at most efficient working level as work advances. Equipped with overhead attachments for planking, the scaffolds also protect workers from falling objects. This scaffolding method was employed by the Manhatten Construction Co., Muskogee, Okla.

FAST LOCK-UP—"Trouble Saver" Scaffolding frames are available for sale or for rental with these fast-acting SlideLoks for joining braces to frames. Wing nuts are eliminated. SlideLoks cut erection and dismantling time and increase safety.

To help you with your scaffolding and concrete shoring methods, PS offers a complete nation-wide engineering service available to you locally. See the Yellow Pages in your 'phone directory for the nearest Patent Scaffolding office or representative that sells and rents "Gold Medal" Scaffolds.

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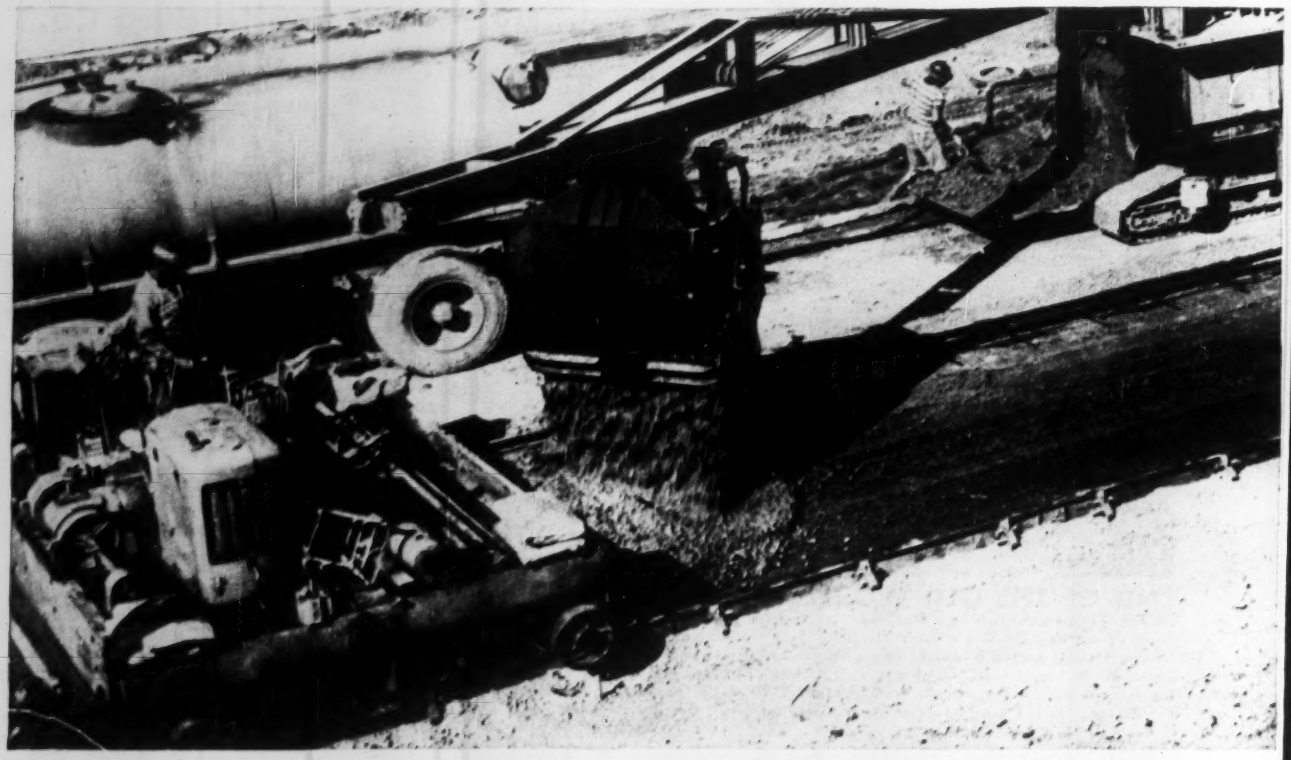
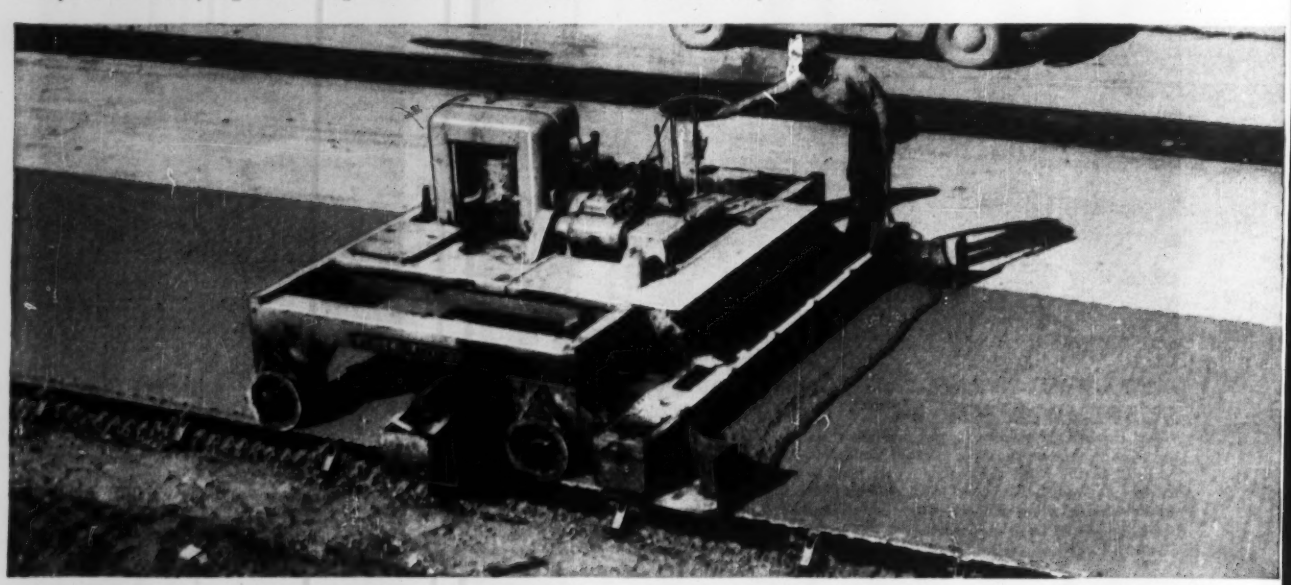


SCREW AND SCREED SPREADING ON FREEWAY: Here Webb & White, the contractors, are using only one man with a Jaeger Screw and Screed Spreader to perform the following functions: (1) Knock down and thoroughly re-mix the concrete piles, (2) Spread the material and compact it solidly against subgrade and side forms, (3) Make rough strike-off with plate immediately behind spreading screw, (4) Make precision strike-off with oscillating 12″ screed, and (5) Vibrate slab along forms. This results in a slab of dense, uniform texture with an ideal surface for the finishing machine to work on. Santa Ana Freeway, California.



FINISHING PITCHED SLAB WITH DIAGONAL SCREED: When material has been properly placed and struck off (best done by Jaeger Screw Spreader), finishing is largely a one-man job with the Jaeger-Lakewood Finisher. Note small roll of material ahead of finisher, assuring uniform finishing compaction under the screeds. Note diagonal setting of rear screed, controlled by operator's hand wheel. This exclusive Jaeger-Lakewood feature insures proper finishing to high side of pitched or super-elevated slab, with little or no carry-back by shovelers. Penn-Lincoln Parkway West, near Carnegie, Pa., Frank Mashudi, subcontractor for County Construction Co.

24′ BASE LAID AS FAST AS TRUCKS CAN DELIVER: Working at only half their capacity, these tandem Jaeger Aggregate Spreaders are laying 2000 tons per 10 hours, put down in three 4″ layers placed to 24′ width in blended 12′ strips. Material is B-2 graded aggregate base. After bonding it is surface treated with asphalt and later a drag treatment is put down. Job is on Highway 220 south of Roanoke, Va., Pioneer Construction Co., Inc., contractors.

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PLACING 18″ THICK AIRPORT SLAB: On Carswell Air Base, Fort Worth, Texas, after material was remixed, spread and struck off by Jaeger Screw Spreader, Nolan Brothers, Inc., used pneumatic vibrators mounted across rear of spreader to vibrate the concrete to its full 18″ depth. Jaeger-Lakewood finishing machine (following at left) then finished the surface. For lesser thicknesses of vibratory concrete, finishing machine can be equipped with tube or Jaeger "bullnose" vibratory front screed.

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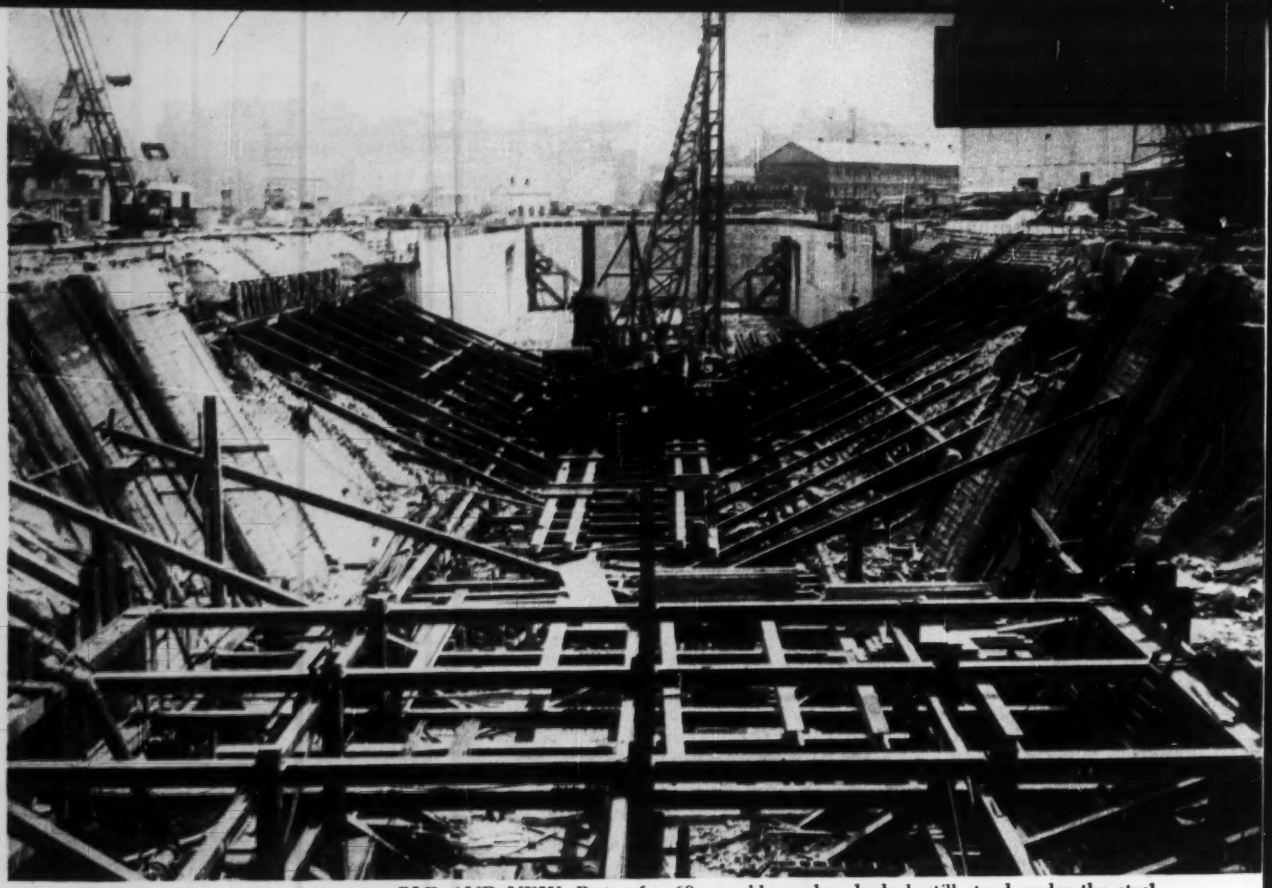


OLD AND NEW—Parts of a 60-year-old wooden drydock still stand under the steel bracing, as contractor installs completely new dock in same area. Section in immediate foreground is an extension of the new dock beyond the outer end of the original, whose gates were located at point where sloping bracing ends.

A Drydock on a Drydock

The problem for contractor and engineers at New York's Brooklyn Navy Yard basically lies in the fact that the job to be done is really one of reconstruction, rather than new work.

The reconstruction involved is the dismantling of a 60-year-old wooden drydock (No. 3), and construction on the same site of a modern reinforced concrete graving dock that will be longer and deeper.

But there has been another problem, too: that of water both from unusually heavy rains and from the ground in the area, which has occasioned a tremendously augmented system of bracing while the structure has been under construction, and finally caused authorities to flood the still-incomplete dock to prevent pressure damage while further remedies were determined.

Steps are now being taken to resolve these problems, and the dock has now again been dewatered so that construction can be continued. But the work has been, and continues to be, a major headache for all concerned.

Drydock No. 3 is on the inside of an elbow of the East River on the east (Long Island) bank of the stream, with its axis lying roughly north and south. With its immediate neighbors—Drydock No. 2 on the west side and Drydock No. 5 on the east—it forms part of the vast but crowded shipbuilding facilities of a Navy Yard that has been in use since pre-revolutionary days.

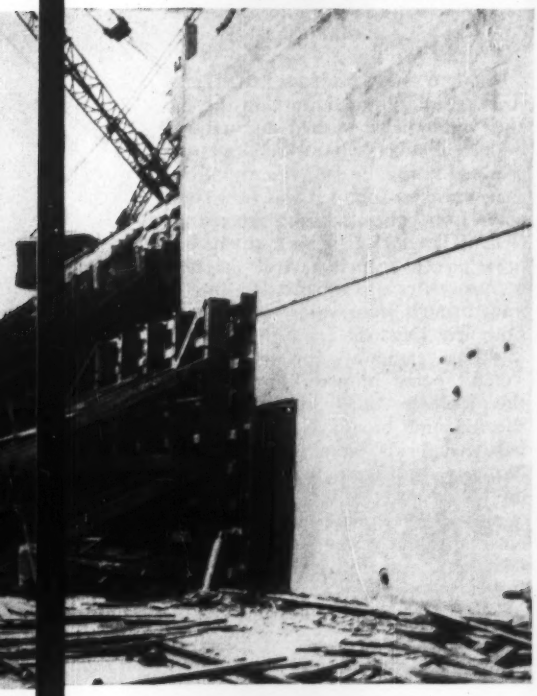
Built at the end of the 19th century, Drydock No. 3 had long been outgrown as ship lengths and tonnages increased. Particularly after No. 5 had been constructed (during World War II) and No. 2 partially rebuilt, it remained an anachronism amid the bustle of supercarriers and modern engines of war and their servicing.

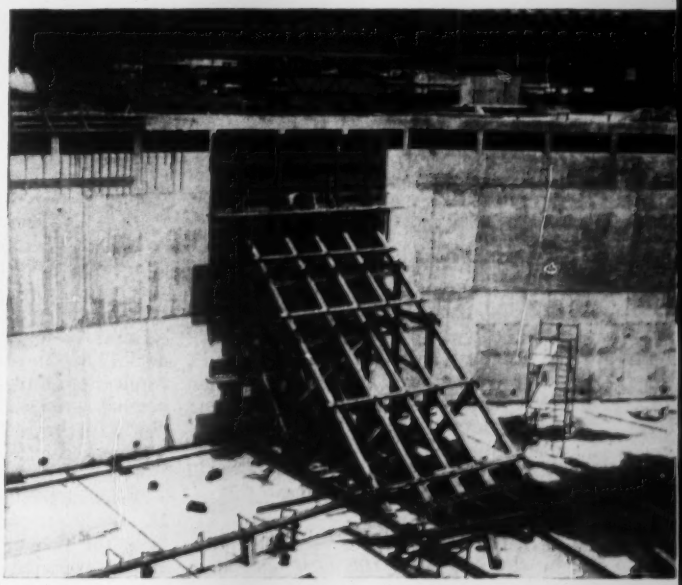
• **Contract provisions**—The contract awarded by the Navy to the Corbetta Construction Co. of New York in August, 1953, on a low bid of $8,967,000 called for:

Removal of the old dock and its supporting works, and construction on the same site of a new structure that would be 125 ft longer, 5 ft

HAND JOB—Removal of the old dock calls for air hammers, saws, picks. Its timber sides, held together by handmade iron spikes, rested on puddled clay blanket, heavy underpinning of wood piling and cross bracing.

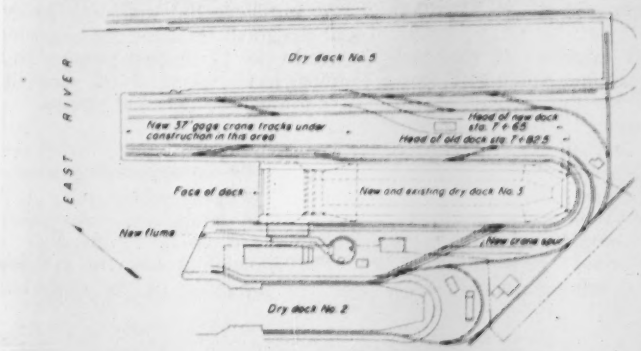
MASSIVE FORMS for casting sidewalls come in two parts. Lower section of wall form 16'8" high is supported by this heavily braced framing, which rides on rails, kicks against stub beams cast into floor slab. Lower lines of bracing are removed for section being cast. Wellpoint system (left) relieves uplift pressures on floor slab.

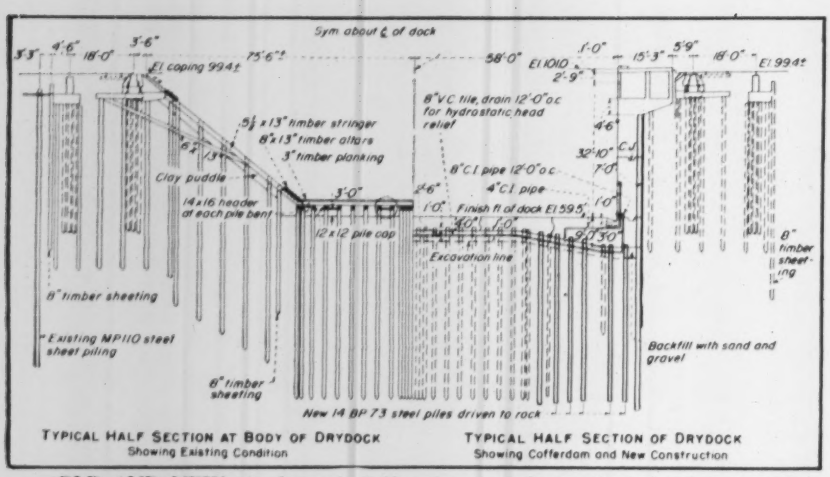




UPPER FORM (21 ft) is held in place by this massive bracing system of 10x10 timbers. Form also rides on rails along floor slab.

CROWDED QUARTERS for builders is result of location between two existing heavily-used dock facilities.


Dry dock No. 5
EAST RIVER
New 37' gage crane tracks under construction in this area
Head of new dock sta. 7+65
Head of old dock sta. 7+80.5
Face of dock
New and existing dry dock No. 3
New flume
New crane spur
Dry dock No. 2



OLD AND NEW are shown in half-sections to indicate what must be removed to accommodate new facility construction.

deeper, but would have the same centerline; and construction of a new pump house, service galleries and other appurtenances.

The old dock had a width at the top of 151 ft, a length, from head to gates, of 650 ft, its wooden sidewalls sloped inward and downward to a 36 in. concrete floor slab, 64 ft wide. The sloping sides were composed of a series of heavy timbers (roughly 12x12 in.) laid parallel to the floor so that they gave the appearance of a series of steps (known to naval men as "altars") directly on a puddled clay blanket that served as a watertight backing.

The whole structure rested on a veritable forest of wood piles. Under the sloping walls, these piles were interlaced with a very elaborate system of diagonal and cross bracing.

Under terms of the contract, Corbetta was to excavate the triangular area under those sloping sides since the new structure is to be rectangular in cross-section. Also, the contractor was to extend the dock northward into the East River.

In the area that had been occupied by the old dock, the new floor was to be relieved against uplift pressures with a porous blanket of sand and gravel, and a drainage system installed under the floor slab. The slab varies in thickness from 4 ft at center to 9 ft at the edges.

The 125-ft extension of the dock is a gravity section, holding its position largely by the weight of the 14-ft-thick concrete slab to be cast as the floor in that area. In both relieved (inner) and gravity sections, sidewalls are to be tied into the floor slabs by heavy reinforcing in an "L" section that would make them, in effect, cantilevers supported by the floor. In the relieved section, sidewalls average 7 ft thick; in the gravity section they are 15 ft thick.

• **Plans vs practice**—According to soil investigations made before designs were completed, the soil near the surface around Drydock No. 3 is silt and gravel liberally intermixed with old timbers. Below that are layers of silt, peat, brown silty sand and clay, brown sandy silt, gray sandy clay, medium brown sand and finally coarse sand or rock at the point of pile refusal (97 ft below ground level.)

The Navy's consulting engineers, Parsons, Brinckerhoff, Hall & Macdonald of New York, suggested that, as a means of dewatering the area and lessening uplift pressures, a series of deep wells and vertical sand drains be sunk around the perimeter of the dock. The sand drains would serve as connecting links between the water-bearing strata, bringing the water down to the foot of the wells to be pumped away.

The contractor, however, was given a choice as to methods of dewatering. He chose to use wellpoints driven from the floor of the old dock. This choice appeared to offer a considerable saving in dewatering costs, since the bottom of the old dock was dry, and nearly at the final excavation depth.

As installed, the wellpoint system was designed to allow underground water to rise by its own pressure to a natural level, taking it off into the river through headers and pumps.

• **Pressures**—With the wellpoints operating, the contractor began driving steel H-beam soldier piles 4 ft on centers, and steel sheetpiling around the perimeter of the dock.

The sheetpiling was driven after the old top-works of the dock had been stripped away, and a trench excavated to a depth of about 17 ft to permit clearing the first lines of old wood piles and to cut through the wood cross bracing.

No water appeared initially in the trench. But almost as soon as pile driving began, water did appear. At the same time, some settlement began to be apparent in the earth section between Drydocks 3 and 5. A vast network of underground utilities is buried in this area, and in addition there are craneways supported on their own piling to carry the enormous cranes used in Naval shipbuilding and repair.

Meanwhile, the contractor started work inside the old dock, opening a slot down the center of the old floor to accommodate the center section of the new slab, which with stub beams cast into it, would also serve as the abutment for the bracing system.

But as pile driving continued, and excavation of the side slopes went ahead, it became increasingly apparent that the sheetpiling and its bracing as installed was not holding properly against pressures coming to bear on it.

Opinions as to what was happening included:

• The fault lay with the effect of the dewatering system on the surrounding ground areas. The several layers of clay, running parallel to the water line, might be preventing water in higher levels from reaching the wellpoints, thus the points were relieving pressure from underneath, but doing little or nothing to relieve pressure from the sides.

• There was evidence that long years of filling and emptying the old dock might have washed out some of the clay blanket behind the altars, and created voids in the surrounding area. Seawater found it way into these voids from where, during reconstruction of Drydock 5, a rock riprap had been placed against a steel sheetpile wall; seawater also apparently found its way through from voids on the west side, near Drydock 2.

• The craneways on either side weren't being properly supported by their piling—some of which was sheared and broomed—and thus unbalanced loads were transmitted to No. 3 as the heavy machines moved on their tracks.

• The settlement in surrounding areas apparently was being caused by compaction of the soil under vibration of the piledriver.

• **Remedy tried**—It was finally determined that a heavily augmented system of bracing—figured on a side pres-

Pumping Station, Madison, Wisconsin — Contractor: Garrett Const. Co., Madison

A Moretrench Wellpoint System in two easy stages took the water down to 2' below subgrade — out of sight — out of trouble.

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Canadian Representative: Geo. W. CROTHERS Limited, Toronto, Ontario

sure up to 80 lb per sq ft—could hold until the heavily reinforced sidewalls had been cast.

As worked out, additional lines of wales (roughly every 10 ft) were added as excavation proceeded, until there are at present four lines of wales and four heavy braces, fanwise from the stub beams.

These braces are of fabricated steel H-beams, some of them of 24-in. size. A total of 2,500 tons of bracing has been in use at one time.

In order to cope with the varying lengths of the bracing, the steel was fabricated in standard lengths, with bolt holes punched into either end at six-inch intervals. To adjust for length, the contractor has only to cut off the required length in six-inch increments, then fit on a plate and bolt the beams together.

The last line of braces and wales—parallel to and below the surface of the finished floor slab—is being cast into the slab.

• **Construction proceeds**—The contractor went ahead to rip out the old slab, cut off the old wood piles, and clean up the area. This is a tedious job that must be done largely by hand, using air hammers to break up the old material, cut away the still-good wood.

Under a subcontract, Raymond Concrete Pile Co. of New York moved in to drive needed extra piling under the floor slab, since it was found—as expected—that the pattern of piles for the original dock was irregular in the extreme, and of course added support was required for the heavier floor slab. Steel H-piles will be driven to support the gravity section floor.

As preliminary work was completed in the relieved section, a 2½-ft blanket of sand and gravel, interlaced by 8-in. perforated tile pipes on 12-ft centers was installed, and reinforcing placed for the new slab. Casting of the slab then proceeded rapidly, a dense concrete (6 bags per cu yd) being delivered by transit mix truck.

For concreting sidewalls, special wood forms were built, braced by 10x10 timbers and moving longitudinally in the dock on rails supported against the stub beams. Steel braces are removed as the form is put in place, the lower form moving in first, and concrete being cast to a height of 16 ft 8 in. The contractor has found that when this initial section has reached design strength, it can sustain the pressure while upper bracing is removed and the upper section (27 ft., including the working gallery) is cast.

A total of about 60,000 cu yd of concrete will go into the dock and its appurtenant works.

• **Rains bring trouble**—But despite the added bracing and other measures, evidence of great side pressures continued to show up.

And extremely heavy rains that rode in on the tails of two successive hurricanes ("Connie" and "Diane") in mid-August, finished the job of bringing the actual construction work to a standstill.

Sizable breaks appeared at two points in the sidewalls in the unconcreted section, and the accumulation of water from two successive rainfalls, plus that coming in through the breaks appeared to threaten the safety of the whole structure. Navy officials ordered the dock flooded in order to equalize pressures and thus preserve the structure as far as it had been built while new studies of remedial work were undertaken.

It is now planned to drive a new impervious cutoff wall on the south and east sides of Drydock 3, in the hope that this will cut it off completely from excessive pressures and permit completion of the job.

• **Design details**—When completed, Drydock No. 3 will be able to handle most Navy ships up to light cruiser classes. Holding a total of nearly 24 million gallons of water, it will be filled by gravity in about one hour, and its three 48-in. dia. centrifugal pumps will be able to dewater it in about two hours.

The gravity relieving system of sand and gravel blanket and clay tile can be washed out through jets so that the pipe can be cleaned of silt and other possible obstructions. The clay tile takes the water to troughs at either side of the dock, which are pitched to pump wells. The bottom of the pump wells are 72 ft below ground surface.

To prevent geysering of water on intake, the Parsons firm designed—after special studies—eight of the ten inlet ports at uniform widths of 2 ft. The first two ports are 1 ft 9 in.

The working galleries, recessed high up on the walls of the dock, will be 7-ft 9-in. wide, a pipe gallery immediately behind them will be 5-ft 6-in. wide.

Keel blocks will not be fitted into slots in the dock slab, but will be moved freely into position. Concrete-filled, their weight is expected to hold them in place.

• **Outer end**—In order to build the gravity section, the contractor drove a line of cellular steel sheetpiling across the north end of the dock, to an elevation equal to existing ground level, then unwatered the area enclosed with pumps, using well points to maintain excavation in the dry and relieve water pressure in substrata.

Open wood lagging, fitted into slots of the steel H-beam soldier beams is used in some areas instead of sheetpiling in this section, and the whole sheeting is also heavily braced from stub beams in the center of the 14-ft thick concrete slab that serves as the floor for this section.

John Tantillo is job superintendent for Corbetta. The Third Naval District is supervising the project.

New Building to Ease Car Inspection

New Jersey has come up with an idea for eliminating some of the exasperating delays and inconveniences that car owners frequently experience when they get their cars inspected or apply for registration or a driver's license.

The state is going to build seven specially designed installations that combine, under one roof, inspection facilities with driver-examination and servicing arrangements.

Outstanding design features, from the motorist's viewpoint, are on-site stacking lanes, and a special lane for speedy re-inspection of rejects. The purpose of the stacking lanes is to eliminate blocking of normal traffic by waiting lines of motorists. These lanes, with 100-car capacity, and the reject lane will adjoin the inspection station. At the rear of the wing will be a driver test course.

The one-story installation has two main elements: a three-lane inspection station and an adjoining T-shaped wing with its own entrance. This wing houses an administrative section, a drivers' examination area, a special drivers' clinic, and a business office for the conventional motor vehicle agency services.

The station and wing will have a structural steel frame with an exterior of insulated metal panels. Features of the interior: asphalt tile floor, movable wall partitions, acoustical ceiling.

The first facility will be erected in the Trenton area, with others all planned in the 1955-56 budget, scheduled for the Newark, Camden, Lodi, Perth Amboy, Rahway and Secaucus areas.

Design of the stations is by Frank Grad & Sons, architects and engineers of Newark, N. J.

"Nylon cord tires reduced off-the-road tire failures . . .

NOW NYLON CUTS TRUCK TIRE COSTS, TOO"

says R. O. LIPPI,

Truck Dept. Mgr., Pacific Coast Aggregates, Inc., San Francisco, Calif.

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Switching Whole Fleet to Nylon

"We're sold on nylon—won't buy anything else. We have 126 ready-mix trucks, plus 124 other vehicles. We specify nylon cord tires on all new equipment, and we're replacing ordinary tires with nylon cords."

PROVE TO YOURSELF that nylon cord truck tires give more mileage, more retreads—lowest cost per mile. Ask your dealer about nylon cord truck tires today. (Du Pont makes the tough nylon yarns, does not produce tires.)

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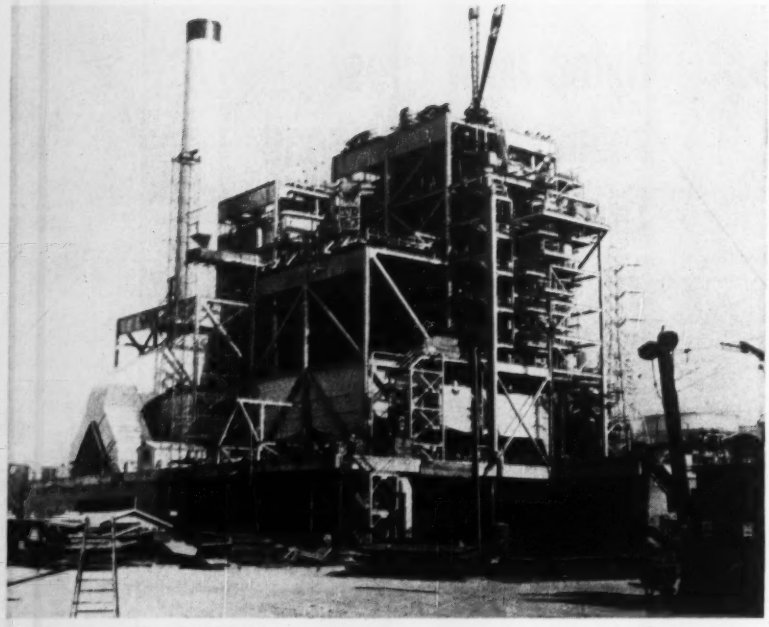

PROTECTIVE COATINGS are critical in ocean front structures such as Southern California Edison's El Segundo Steam Station now under construction by Bechtel Corp.

Getting Painting Value By Scientific Control

R. B. Kavinoky
Bechtel Corp.

Application of paints and other coatings is one of the most—if not the most—poorly controlled phases of the construction industry. Means of proper control are available including several different instruments for measuring thickness and detecting flaws. Intelligent use of such devices is helping to give industry more value for its coating dollar.

As a part of its power plant engineering program, Bechtel Corp. has undertaken an intensive investigation of the protective coatings problem. Results of these studies have been applied on all of the recent works designed and constructed by this organization.

Bechtel engineers have concluded that corrosion control by the use of coatings requires an integrated consideration of several distinct factors; these include type of exposure, surface preparation, materials choice, practicability of application, first cost and annual economy.

The inter-relationship of exposure, materials, and surface preparation is very complex and not easily nor safely simplified. This problem has been treated in detail in Volumes I and II of the "Painting Manual" published by the Steel Structures Painting Council (4400 Fifth Ave., Pittsburgh 13, Pa.).

Insofar as materials are concerned, the engineer responsible for selecting protective coatings should be very critical of the miraculous claims made for some. In many cases the claims, while true under laboratory conditions, cannot be substantiated on the job, while in other cases the virtues claimed frequently have little bearing on the problem at hand.

This same manual contains much data relative to painting costs and will be of help in preparing an economic analysis of a coating problem. Since costs vary widely, each situation should receive individual attention.

• **Application**—Application is the key to many protective coating failures. In years past, the application of paints has typically been specified by number of coats, approximate square feet per gallon, and terms such as "material shall be thoroughly brushed out" or "all material shall be applied according to the best practices of the

Teaching workmen what is required of them is a primary function of inspection. Here a painter is shown by use of a wet film thickness gage if his work meets specifications.

Gaging thickness by a small magnetic instrument that measures in mils. Recent Bechtel practice requires less paint on flat areas, more on edges and other "hard to coat" places.

Checking continuity of coatings can best be done by low voltage electrical devices. Such holiday detectors are most effective on edges, welds, rivets and the like.

industry." Such standards are difficult to evaluate and even more difficult to enforce unless there are gross deviations. Such requirements are not considered appropriate for coating work that must be carefully done to a high standard with controlled economy.

Coating application can be broken down into distinct parts. Once a coating has been selected which is suit-

COMMENT

from the

BUTLER ENGINEER

. . . Of a Giant, Whiskers and Successful Bids

Your Butler engineer has now dealt with the ultimate — the pinnacle — the Mt. Everest of complexity in materials handling and plant design. Did I say "plant"? I meant multiple plants. It's a gigantic layout. On my preliminary scale drawings a line of 10 freight cars looked small as 10 whisker bristles from a morning shave. It's a huge ready mixed concrete deal; they sell sand, gravel and other aggregates, and they also have a large asphalt operation. Materials come in and ship out by train, by barge and by truck. And conveyors had to be designed to switch from barge to truck and again to train from the enormous stock piles. In several instances conveyors had to be reversible on exactly the same plane.

The entire yard is a network of rail lines and sidings, yet we were able to plan all truck routes without crossing any tracks . . . Have you ever seen a complicated wiring diagram? That's about what our drawings resembled.

But we're all proud to have been consulted and we're doubly proud our plans and recommendations are accepted. We feel that it is not only a feather in our cap; we think it represents more feathers than are in an Indian war bonnet.

•

Roadbuilders have a cheerful fact to deal with since the development of the Butler *Automatic* Roadbuilders Plant. As you may know, it batches sand, cement and two sizes of stone *with only one operator.* (Suggest you write for Bulletin describing it) . . . The cheerful fact? A contractor with this plant can successfully bid any paving job he wants, and make a bigger profit.

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The Butler Engineer

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National Brick Co., Terra Cotta, D.C.

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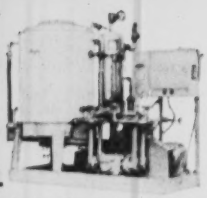

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able for the exposure, its durability depends on three characteristics; namely, thickness, adhesion and continuity. This is not to say that any coating will do any protective job as long as it is thick enough, adheres tightly and is without porosity. It is important to realize that even after selecting a material which satisfies the exposure requirements, it is necessary to apply that material properly if the required protection is to be obtained.

• **Thickness**—Protective coatings are generally described in terms of the mil (.001 in.). To the average engineer this requires a complete revision of dimensional concept, for it is different to realize the significance of thousandths of an inch when one is used to thinking in terms of sixteenths, eighths and larger dimensions. There are, however, a number of excellent non-destructive instruments available which will quickly and accurately measure the thickness of paint coatings applied on steel. From the standpoint of the construction engineer, the most useful of these is a pocket-sized magnetic gage of English manufacture (Elcometer).

The importance of thickness has been accepted intuitively by the industry for many years; witness the recommendation that a three-coat job is more than a third better than a two-coat job. But science has gone beyond intuition and demonstrated statistically just how important thickness really is, and what constitutes adequate thickness and what constitutes inadequate thickness (Chemical Engineering, May, 1952, p 149). Several hundred simulated "job-condition" test panels were exposed at various locations in chemical manufacturing plants. These panels, with the sharp edges, welds, crevices, and other irregularities typical of structural steel, have proven a much more reliable testing medium than smooth steel panels. The tests indicated that for most materials not in submerged service five mils should be considered a minimum dry thickness on flat surfaces so that the adjacent welds and sharp edges will be adequately protected.

Recent Bechtel practice on coastal power plants deviates from this procedure by specifying less material on the flat areas, thus reducing the overall painting cost. However, emphasis is placed on thorough coating of welds, edges, and similar "hard to coat" areas. Continuity in these areas is assured by the use of electric conductivity inspection devices.

• **Adhesion**—At the present time, there are laboratory devices that evaluate adhesion of paint coatings to the surface on which they are applied. However, these devices are complex and bulky and unsuited to field use.

The best field test for adhesion still seems to be the pocket knife. By scraping the knife over the paint with the blade nearly perpendicular to the surface and observing whether it flakes away from the undercoat or has to be scraped away, one can quickly compare, qualitatively, the adhesion of various coatings.

This knife blade test is, in reality, a comparison between the adhesive bond of a paint to the underlying material and its internal shear-tensile strength. As the blade scrapes across the paint, it creates shear and tensile stresses within the paint coating, and between the coating and the surface to which it is applied. Thus, if the adhesive bond is relatively low, the paint flakes away from the surface and a jagged break is observed. If, however, the adhesive bond is relatively high, then it is necessary to wear or abrade the paint away, with the result that the surface is comparatively smooth. On most properly applied paint systems, the adhesive bond is so good that the only way the interface between two coats can be detected is by the change in color from one material to the other.

• **Continuity**—The importance of continuity depends in part on the severity of exposure. If the exposure is a mild one or if the consequences of

Manufacturers of Field Control Equipment

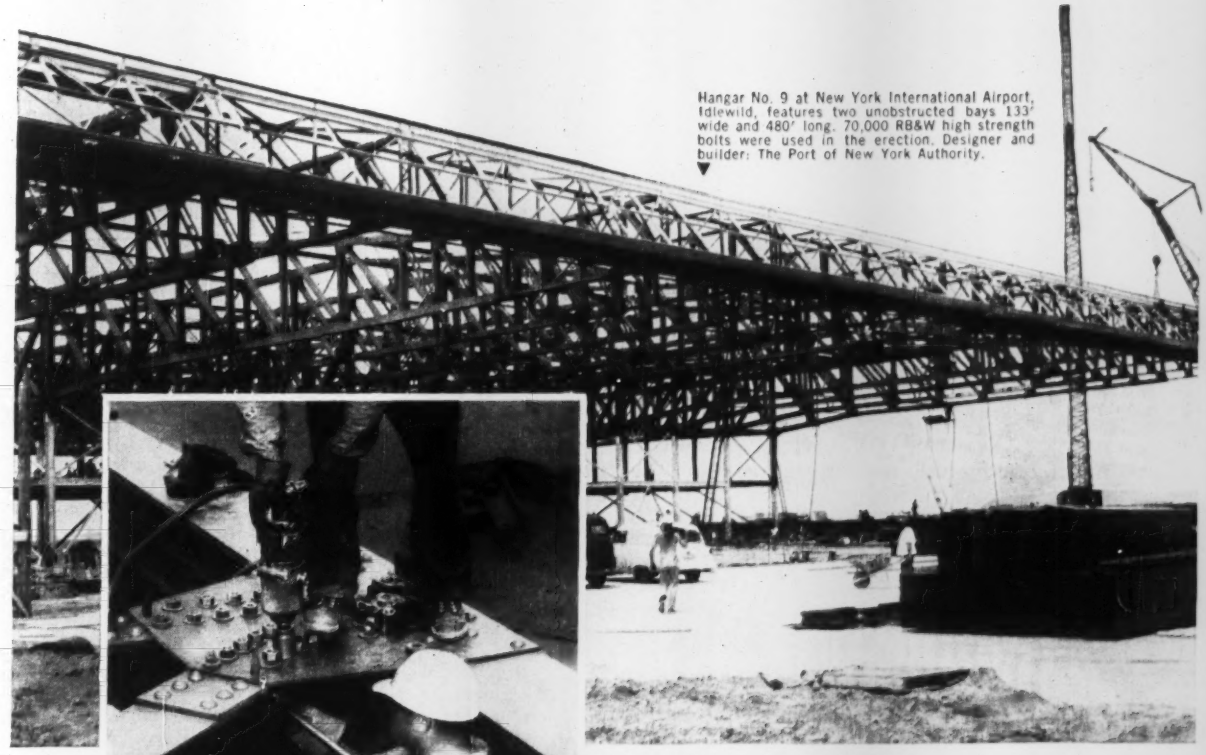
Branson Instruments Inc., 430 Fairfield Ave., Stamford, Conn. Portable electronic dry thickness meter that can be converted to a continuity meter.

Gardner Laboratory Inc., 4723 Elm St., Bethesda 14, Md. U. S. agents for the pocket-sized, magnetic, dry thickness gages and equipment for making standard laboratory tests required by federal and other paint specifications.

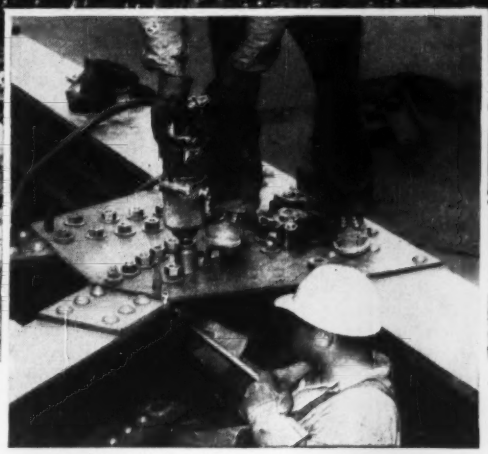
K-D Company, 2091 Cornell St., Palo Alto, Calif. Wet film thickness gages and low voltage electrical and electronic holiday detectors.

Petroleum Instruments Co., Box 6252, Houston, Texas. Low and high voltage holiday detectors.

Tinker and Rasor, Box 281, San Gabriel, Calif. Low and high voltage holiday detectors.



Hangar No. 9 at New York International Airport, Idlewild, features two unobstructed bays 133' wide and 480' long. 70,000 RB&W high strength bolts were used in the erection. Designer and builder: The Port of New York Authority.



◀ Two man crews use impact and holding wrench to install RB&W high-strength bolts.

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Extensive field assembly also done economically with RB&W High-Strength Bolts

HERE'S bolted steel construction with a few new twists.

Using RB&W high-strength bolts, the Lehigh Construction Company, Inc. (division of Lehigh Structural Steel Co.) fastened members together virtually from the ground up. Almost all assembling was done right in the field since height of truss sections came to 22 ft. Cranes then raised into place the big assemblies weighing up to 74 tons. These were fastened with RB&W bolts to form the double cantilever structure of the hangar being built by the Port of New York Authority for occupancy by Eastern Air Lines.

Because bolting is a fast operation and uses two-man crews, field assembly was economical.

Moreover, high-tensile bolts are safer to install and stronger than rivets. RB&W high-strength bolts clamp members together *permanently tight*. They develop optimum joint strength.

RB&W bolts have the controlled, uniform quality you can depend on, proved on all kinds of jobs. Their performance has helped to make RB&W the largest independent supplier of high-strength bolts for construction.

For more information on this modern joining technique, see the RB&W catalog in Sweet's Architectural or Industrial Construction File (2cR/VO) or send for "High-Strength Bolts," reprinted from Architectural Record.

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moderate material loss are not significant structurally, then a finished coating of considerable porosity can be tolerated. However, in the case of coastal construction or chemical exposures, the result of significant porosity is frequently the rapid loss of the entire coating and perhaps a serious impairment in structural value; under such conditions continuity of coating is very important and great care must be taken to insure that an impervious barrier is provided.

At this point it should be noted that few, if any, coatings are completely without some physical pore structure. However, with regard to surface protection in most environmental conditions, many coatings can be considered to be essentially nonporous. It has been demonstrated that, in general, electrical resistance of a coating is proportional to the protective value when the coating is wet with water or other electrolyte.

Perhaps the surest way of inspecting for porosities is the high-voltage spark tester that has been used effectively for many years in the inspection of heavy bituminous coatings. But as the thickness of the coating decreases, it becomes increasingly vulnerable to puncture by the high voltage spark. Thus, on thinner coatings it becomes inadvisable to use this method except by the most competent inspection personnel. For thin coatings, the most effective method currently available is that of electric conductivity.

Protective coatings function principally by insulating the metal from the corrosive material. Measuring effectiveness of such insulation is also measuring resistance to corrosion.

In practice, the paint and its conducting sub-strata are included in a low voltage electric circuit, with contact to the paint film being made by means of a wet sponge or piece of felt. The occurrence of a defect, such as pinhole, porosity or very thin film, is then noted by an increase in the current flowing in the test circuit.

Various types of equipment are available commercially for performing such inspections. They range from a simple battery and meter in series with the paint coating to more elaborate bell-ringing devices, and finally to extremely sensitive electronic equipment.

By a combination of the tests mentioned above, it is possible to eliminate many of the common defects in protective coating work that arise more from indifference on the part of the applicators than they do from fundamental errors in formulation or choice of material. These test methods are useful, to be sure, for the purpose of finding defects so they can be repaired; however, they are of much greater benefit if they can be used to help the painters understand more clearly exactly what is required of them. Where the painting foreman and job supervisory personnel are cooperative in an educational program, the quality of the application work quickly improves—particularly where those critical points of early failure such as the edges of structural members, welds, bolts, rivets and other prominences are concerned.

• **Wet film thickness**—The dry thickness-measuring gages mentioned previously can only be used when the coating is applied over a magnetic material. They are of no use for the inspection of coatings applied over concrete or nonferrous metal. For this purpose, it is necessary to use a micrometer depth gage for dry thickness measurements or to control the application of the materials by means of wet paint thickness gages. These vary in precision, cost and efficiency, but if properly used, all will more than repay their cost in increased protection.

• **Specifications**—Preparation of painting specifications is an important phase of the protective coating work. Specifications should contain a complete and concise definition of the coating work to be done. And they should also contain the necessary instructions and authority to permit the field coating engineer to require quality of work specified. However, as with other phases of construction, specifications which are either unreasonably strict or which leave too many details to the discretion of the engineer can result in higher costs or unsatisfactory work. Among the points that should be covered for more effective field control are the following:

• Thickness and number of coats: The minimum acceptable dry thickness should be stated. The nominal or minimum number of coats may also be mentioned, but it should be made clear that the thickness and continuity requirements govern the work. The method by which thickness measurements will be made might also be included.

• Continuity and adhesion: Coating work should be required to be tightly adhering and impervious to moisture penetration. The continuity test to be used should be described in detail or by reference to the instructions of the manufacturer of an acceptable test instrument. The minimum acceptable standard of conductivity should be stated preferably by comparison of the critical areas such as welds, projections and crevices with smooth areas coated to the dry thickness specified.

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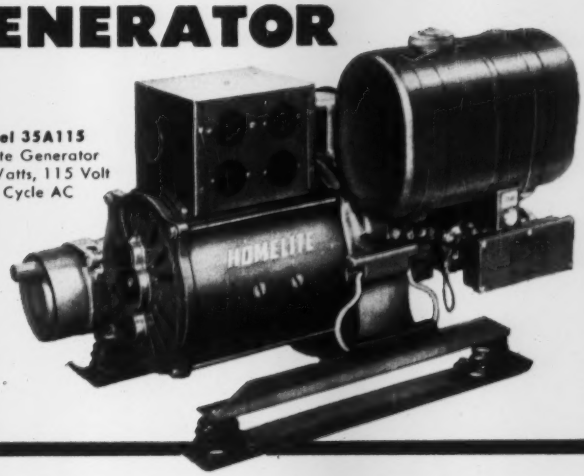

As easy to move as an electric hand saw!

1. New Money-Saving features . . . No DC brushes; just two easy-to-get-at collector ring brushes . . . No commutator or DC windings . . . No intermediate couplings; armature keys directly to shaft. Fewer parts to wear out — longer trouble-free generator service.

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4. Compact and Lightweight . . . one man can easily carry this generator wherever you need electricity to power time-saving electric tools. No need for long, hazardous power-consuming cables.

Whatever tools you want to operate — electric saws, drills, floodlights, grinders, belt sanders, hammers, — the new Homelite 35A115 generator can save you money. For a free demonstration or additional information, call your nearest Homelite representative, or write:

SAVE EVEN MORE! New Homelite electronic idle control unit, available as optional accessory, runs engine at idle speed when no current is drawn . . . automatically brings engine to full speed when load is applied.
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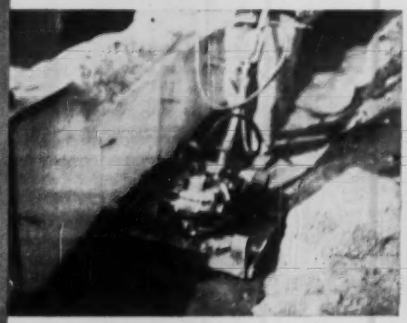
10 LEADS TO BETTER, and BIGGER *FASTER RESULTS* PROFITS!

MACADAM DENSIFICATION. The Jackson Multiple Compactor consolidates granular soil sub-bases and base courses of sand, gravel, rock or slag in half the time required with equipment of other types.

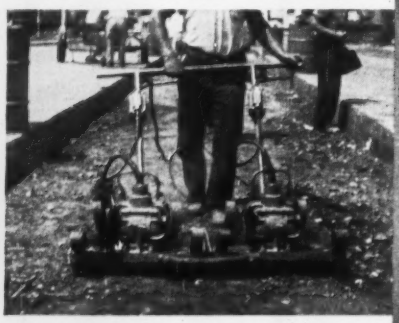
PAVEMENT WIDENING. The Multiple Compactor can be quickly converted to provide in ONE PASS 100% of required density in granular soil sub-bases and rock courses in any widening project.

GRANULAR SOIL FILLS. The Multiple Compactor quickly achieves specified density, gets into places bigger, more expensive equipment cannot reach. Individual units can be detached, operated as manually guided compactors.

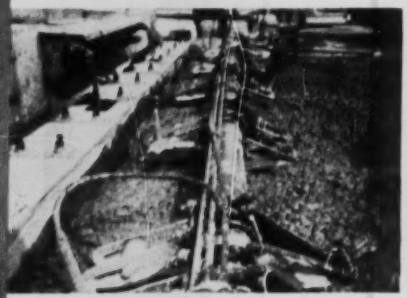


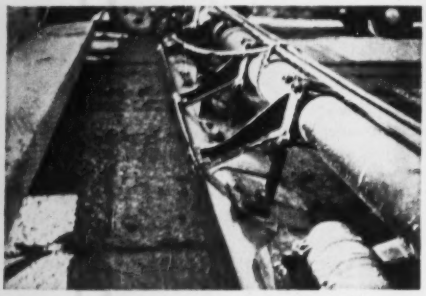
SOIL COMPACTION. Self-propelling, the JACKSON COMPACTOR, with 12" to 26" interchangeable bases, achieves specified density of granular soils in 8" to 10" depths at 2000 sq. ft. per hr. Perfect for bridge and pipe line fills, concrete floor sub-bases, etc.

BLACKTOP WIDENING & PATCHING. The same machine operated from power plant on auto-trailer with pickup for Compactor is most efficient means of blacktop pavement patching, paving walks, drives, etc. Will compact up to 2000 sq. ft. per hr. close to maximum density.



TWIN-UNITS — ONE OPERATOR. With a two-unit, side-by-side or tandem hookup of JACKSON COMPACTORS, one man can readily do the work of two, since the compactors are self-propelling and he has only to guide them.





CONCRETE VIBRATION FOR HIGHWAY AND AIRPORT PAVING

INTERNAL TYPE; super-powered, gives full width internal vibration through full depth of very thick slabs. Saves time, cement; provides greater density and compressive strength. Attaches to finisher or spreader.

SURFACE TYPE; does perfect job of vibrating all mixes in depths used on highway projects. The owner of a JACKSON Paving Tube can quickly switch from internal to external vibration, or vice versa, at minimum expense.

MUNICIPAL PAVING: This vibratory screed strikes off to all crowns, undercuts at curb or sideform, works right up to and around obstructions, is rolled back for second passes on 4 rollers. Most productive and convenient screed made.

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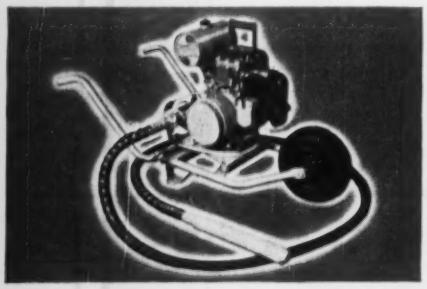
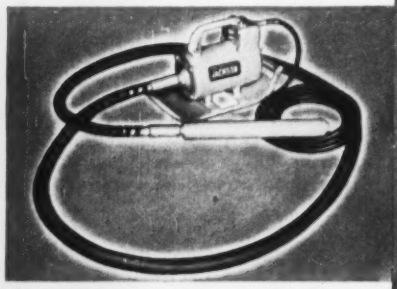




GENERAL CONSTRUCTION

(Left); 6 H.P. engine-driven, flexible shaft vibrator. Excellent for both thin and thick sections. (Right); 2½ H.P. electric vibrator (for light-socket operation). Handy as a pocket in a shirt, powerful enough to handle all general construction concrete vibration with shafts up to 28'.

JOINT IN PLACE on highway roadbed is ready for concrete pouring. A section of the seal (right) shows how metal sleeves for transload bars are attached.

Prevents Pumping

Rubber and Steel Seals Highway Expansion Joint

A rubber and steel highway expansion joint designed to eliminate pumping and water seepage is showing high promise in tests now underway on Ohio highways. The joint performs three jobs: it provides sufficient flexibility for thermal expansion and contraction; it acts as a positive leakproof seal to prevent water from seeping through to the roadbed; and it transmits vertical loads from one block to the next through a rigid mechanical linkage.

The rubber sealing-strip of the joint assembly is molded with heart-shaped, longitudinal cavities. The shape of the cavities causes the joint to resist any upward movement during expansion, contraction or flexure caused by traffic. Metal dowel pins, or transload bars, spaced at 12 in. intervals also hold the joint securely in place. The transload bars slide freely in metal sleeves which are attached to the seal by a bellows arrangement. The joint thus permits longitudinal displacement, but restricts relative movement of the concrete slabs in vertical and lateral directions. Metal parts of the joint are treated with rustproofing compounds and are given a coat of dry lubricant at the factory. The rubber seal is made of synthetic rubber that is resistant to oil, calcium, and water attack.

The joint is installed by staking down the welded steel assembly that holds the transload bars, placing removable metal side plates to hold the rubber strip straight, and pouring the concrete. A metal strip is laid over the top of the seal, and is removed after the concrete is finished, so that the seal is about an inch below the surface of the road. Filling the depression with asphalt or a rubber compound provides a flush joint.

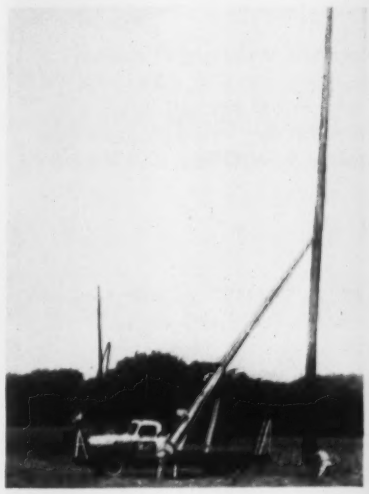
The inventor of the joint—J. G. Carter, a Columbus, Ohio contractor—recommends the use of the joints with 50 or 60 ft concrete slabs. The waterproof highway that results, according to Carter, should permit a reduction in the depth of sub-base resulting in cost reductions that offset the increased expense of the fabricated joints.

The joint is adaptable to city streets as well as highways, and is now being installed as a jointing system in the terrazzo floor of a Toledo sewage disposal plant. EON CORPORATION OF AMERICA, HARTMAN THEATER BLDG., COLUMBUS, OHIO.

New Sliding Doors Take 1 in. Thick Double Glazing

Rugged enough to carry the weight of 1 in. double glazing, a new aluminum glass door has weatherproofing

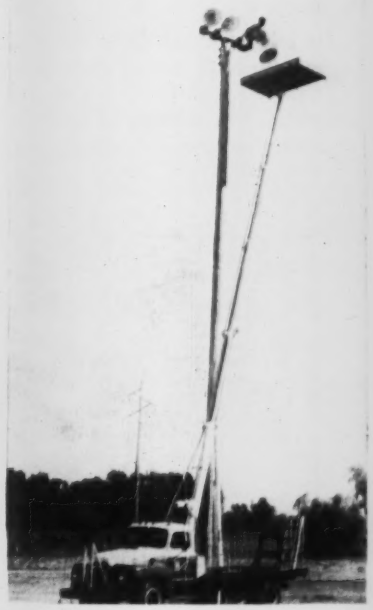
(*Continued from page 60*)



Derrick to Platform . . . . . In a Ten-Minute Switch

A new truck mounted telescoping boom does double duty as a 65 ft aerial platform and a 2-ton, live-boom derrick.

The 6½ x 5 ft working platform rises to a height of 60 ft; swings 12 deg to front and sides; and goes 30 deg off vertical to the rear. Direction and speed of movements are controlled from a panel on the truck chassis or from the platform itself. With the working platform replaced by a



head sheave the unit converts into a derrick with the front-end mounted winch. One man can make the conversion in about 10 minutes.

The Hi-Reach unit, including the winch, is hydraulic, with power supplied from the take off on any standard long wheelbase 2-ton truck. The boom controls have relief valves to prevent overloading. Elliot Manufacturing Co., Omaha 2, Nebr.

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for the 1001 applications where safety and strength come first. Kerrigan Steel Grating is BONDERIZED for corrosion resistance and extra years of life.

STAINLESS and MONEL
non-magnetic steel for the chemical, oil and packing industries . . . for ANY installation where high resistance to heat, acids, chemicals, and corrosion is needed.

TRULY . . .
In both size and type, there is a Kerrigan Weldforged grating for every need. Let our new catalogs prove it to you. Send for the one you think best answers your need (or ask for ALL FOUR if you wish). We will also be glad to send you a desk-size grating sample. Write Kerrigan Iron Works, Inc., General Sales Office, 274 Madison Ave., New York City.

RIVETED STEEL
where it is desired to match existing grating.

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spark-proof for those whose need is strength AND lightness. Extra safe and strong. Allowable fiber stress 15,000 psi. Modulus of elasticity 10,000,000 psi.

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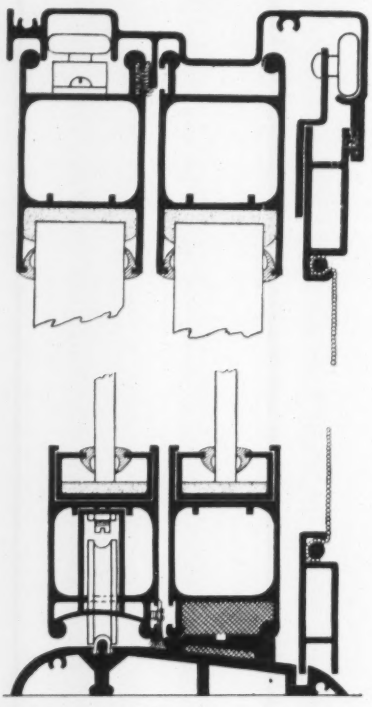
. . . New Products



TOP AND BOTTOM section details of sliding door frame show how the unit is adapted for 1 in. double glazing or standard glass.

features that extend the utility of sliding doors in severe climates. Utilizing the design flexibility of aluminum extrusions, the door has a profile of only 4 in., including jambs and screens, which are integral parts of the unit.

The sliding door rides on two sets of adjustable, train-type, ball-bearing steel wheels that track on a stainless-steel insert in the curved sill. The manufacturer claims to have eliminated the primary causes of freezing in a closed position by a new design of the vertical meeting stiles. The consideration of screening in the overall design ensures positive closure of sliding screens over the door opening.

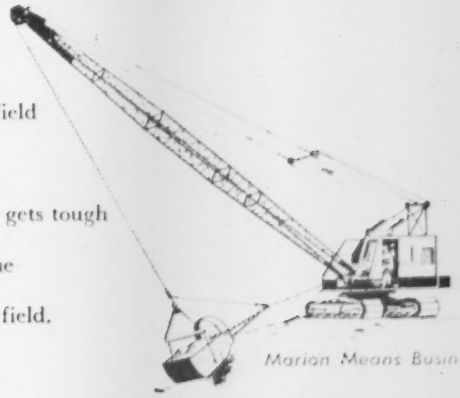
While the door is intended primarily for 1 in. thick glass panels, adding a simple adapter frame permits the unit to accept standard plate glass. Cushioned wrap-around glazing eliminates screw-on bead in both double and single glazed doors.

Called the Capri Continental series, the doors are available in standard and custom sizes from building supply dealers. Architectural details will be supplied by the manufacturer, T. V. Walker & Son, Inc., P. O. Box 547, Burbank, Calif.

(New Products continued on page 62)

champions in their field . . .

Point! Flush! Retrieve! You thrill to the brilliant field work of an experienced Irish Setter. A glance tells you his sure-footed poise and his stamina when the going gets tough are the marks of a true champion. You'll recognize these same qualities in Marion's one-yard 43-M, a champion in its field.



Marion Means Business

MARION POWER SHOVEL COMPANY, MARION, OHIO

There is No Worry about Failures or Maintenance Costs with TRU-LAY *PUSH*-PULL Remote Controls

• On Construction Equipment they are being adopted by an ever-increasing number of engineers because they are Rugged, Trouble-Free, Accurate and Adaptable to all sorts of mechanical situations.

Long Life is a matter of record. We have never heard of a TRU-LAY *Flexible* PUSH-PULL CONTROL wearing out in normal service. Failures, that sometimes harass users of more complex controls, are eliminated by the use of these simple, positive-action Push-Pulls.

Dependable Operation of these controls is a certainty, even under the most adverse conditions . . . HOT as jet engines (Note: TRU-LAY PUSH-PULLS are actually performing on hot jet applications) . . . COLD to 70° F. below zero . . SOAKIN' WET . . . ABRASIVE . . . or just plain TOUGH.

Freedom from Trouble is assured because of such features as . . . full protection of the inner, working member by the tough flexible conduit . . ./lubrication of the working member *for life* during assembly . . . seals that keep moisture, dust and other foreign matter out of the unit . . . cold swaging of fittings that makes them integral parts of the control unit.

Accuracy is inherent in the basic design of TRU-LAY PUSH-PULLS. They are precision products, not gadgets.

Capacity ranges from light jobs up to jobs of 1,000 lbs. input. These Push-Pulls will handle jobs 150 feet or more from the control point.

Adaptability to all sorts of mechanical situations explains, in large measure, the use of TRU-LAY PUSH-PULLS on literally hundreds of different machines and equipment. The *flexibility* of these controls makes it possible to provide positive, remote-action whether anchorages are fixed or movable . . . it damps out noise and vibration . . . and reduces the number of working parts.

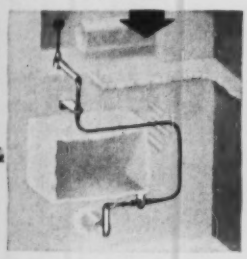
• • •

TRU-LAY PUSH-PULLS are "Solid as a rod but *Flexible* as a wire rope." This flexibility makes it possible to snake around obstructions . . . permits the ideal arrangement of all elements of remote controls.

***Advantages** of Tru-Lay Push-Pull flexibility and simplicity are pictured below*

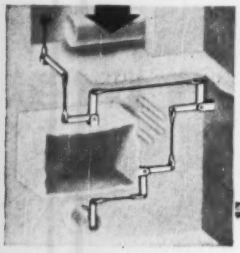
TRU-LAY PUSH-PULL

Simple
One Moving Part
Life-Time Service
Life-Time Accuracy
Low over-all Cost
Noiseless



MECHANICAL LINKAGES

Complex
Many Parts
Many Points of Wear
Increasing Back-Lash
Loss of Accuracy
Vibration
Rattles



Widely Used on Construction Equipment

• These accurate and dependable Remote Controls are used on a wide range of Construction Equipment . . . Tractors and their accessories, Power Shovels, Winches, Graders, Road Oilers, Dump Trucks, Snow Plows, Engine-driven Pumps, Crushers, etc.

On such equipment TRU-LAY PUSH-PULLS are used for the remote control of Transmissions, Hydraulic and Air Valves, Brakes, Clutches, Throttles, Chokes, Governors, Power Take-Offs, and on many other applications.

Our DATA FILE will answer your further questions
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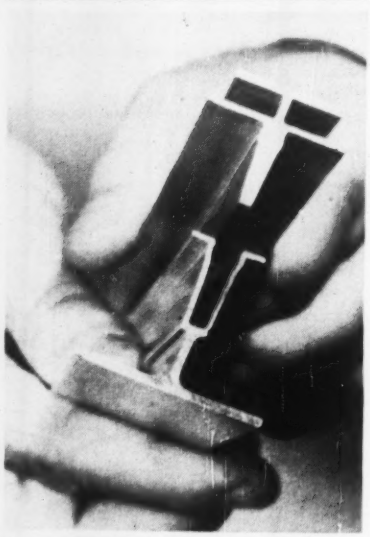


H-SECTION of channel at top of picture holds wall panels, snaps into mating strip which is fastened to wall to act as furring.

Extruded Metal Channels Suspend Acoustic Wall Panels

Two aluminum extrusions, shaped so that one snaps into the other, make a simple friction clamp for suspending wall panels. One channel acts as furring and the other, attached to the curtain wall panelling, snaps into it to hold the wall in place. No other fasteners are needed. Wall panels can be removed or changed by prying the channels apart.

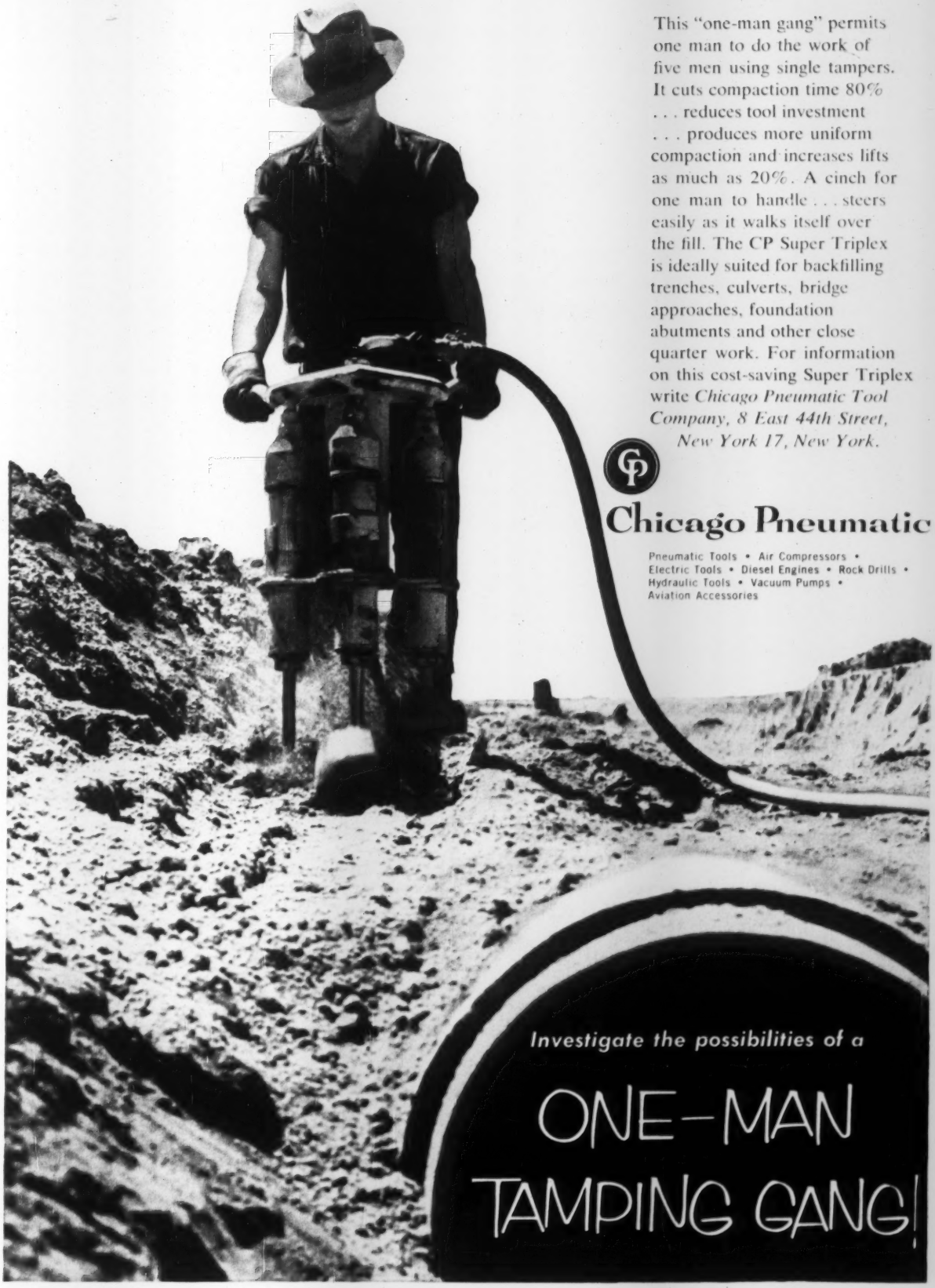
Five different aluminum extrusions form the basis of the snap-on snap-off wall system. Special shapes are provided for inside and outside corners, edging, furring, and snap on members. To erect a wall, the firring, edging and corner channels are attached to walls or studding by screws, nails or adhesives, then the metal or hardboard wall material is inserted in the snap-on member and clicked into place.

Many wall materials are adaptable to the system. Using perforated panels with sound absorbent material in the space between panel and wall, the system gives excellent acoustic control. For coverage of high walls and large ceiling areas, the aluminum channels in lengths from 8 to 20 ft.

Since the wall and ceiling panels are removable, they are easily taken down for cleaning and painting with minimum disturbance to office occupants.

The "Snap-On-Wall" channels will support panels of perforated hardboard or metal up to 4 ft wide. The system is manufactured by FARDLE PERFORATING CO. INC., ROCHESTER, N. Y.

(Continued on page 66)



This "one-man gang" permits one man to do the work of five men using single tampers. It cuts compaction time 80% . . . reduces tool investment . . . produces more uniform compaction and increases lifts as much as 20%. A cinch for one man to handle . . . steers easily as it walks itself over the fill. The CP Super Triplex is ideally suited for backfilling trenches, culverts, bridge approaches, foundation abutments and other close quarter work. For information on this cost-saving Super Triplex write *Chicago Pneumatic Tool Company, 8 East 44th Street, New York 17, New York.*

Chicago Pneumatic

Pneumatic Tools • Air Compressors • Electric Tools • Diesel Engines • Rock Drills • Hydraulic Tools • Vacuum Pumps • Aviation Accessories

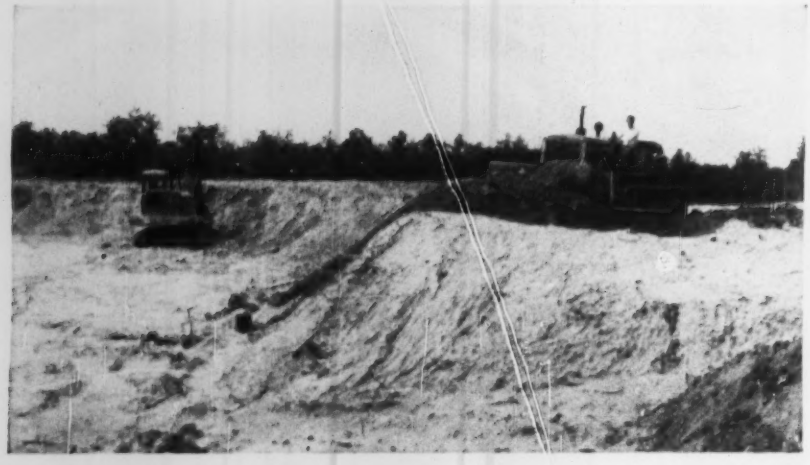
Investigate the possibilities of a

ONE-MAN TAMPING GANG!

JOBS on the move

New design, outstanding features of Allis-Chalmers HD-11 Tractor and HD-11G Tractor Shovel help step up output on all kinds of work

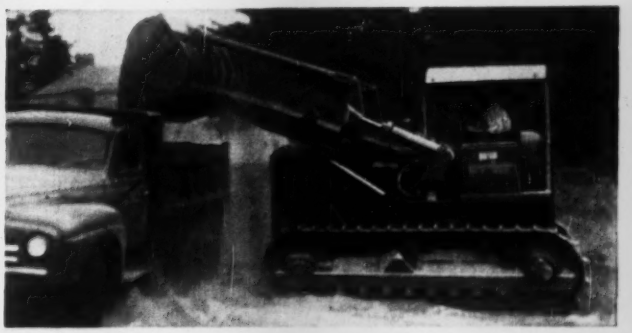
Dozing and excavating in Paradise Valley, Pa., this HD-11 dozer-tractor is working on the job of replacing and relocating parts of a township road washed out in floods. The unit, owned by S. R. Nauman and Sons, Cresco, Pa., is shown here dozing out part of the 2,000-yd excavation, preparing grade for placing 10,000 tons of crushed stone base.



Grading, stripping and stumping are some of the jobs handled by this HD-11 Tractor with hydraulic bull-dozer blade. The unit, shown here stripping a gravel borrow pit for fill on roads, is owned by Atlantic County in New Jersey. There's a full program of work for the tractor — snow removal in winter and general maintenance on 390 miles of road the rest of the year.

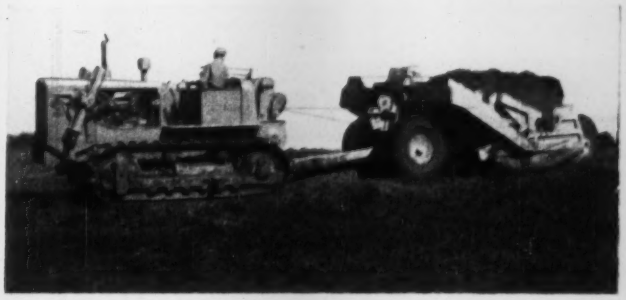
Clearing and skidding on a logging operation is the full-time job of this HD-11 Tractor. Equipped with a canopy and dozing blade, the unit is working in Deschutes National Forest for Lundgren Lumber Co., Bend, Ore.

Excavating and stockpiling topsoil for a new athletic field in Bel Air, Md., this HD-11 Tractor with bulldozer is on the job about 50 hours a week. The owners, T. & T., Inc., Whiteford, Md., use the tractor to strip topsoil, grade area, replace topsoil and landscape. About 28,000 yd of excavation will complete the job.



Excavating and dirt moving on a 12,000-yd job for a service station location is speeded by this HD-11G tractor shovel. The new unit is one of a fleet of five Allis-Chalmers tractors owned by Bass Construction Co., Seattle, Wash. A new Allis-Chalmers engine, 105 net engine hp, provides plenty of power and handles hydraulic requirements with ease.

Road building and maintenance in Franklin Parish, La., get an assist from a new HD-11 tractor-bulldozer. The unit is at work widening 40 miles of farm-to-market road near Wisner. Later, it will aid with regular maintenance on 1,750 miles of parish road.

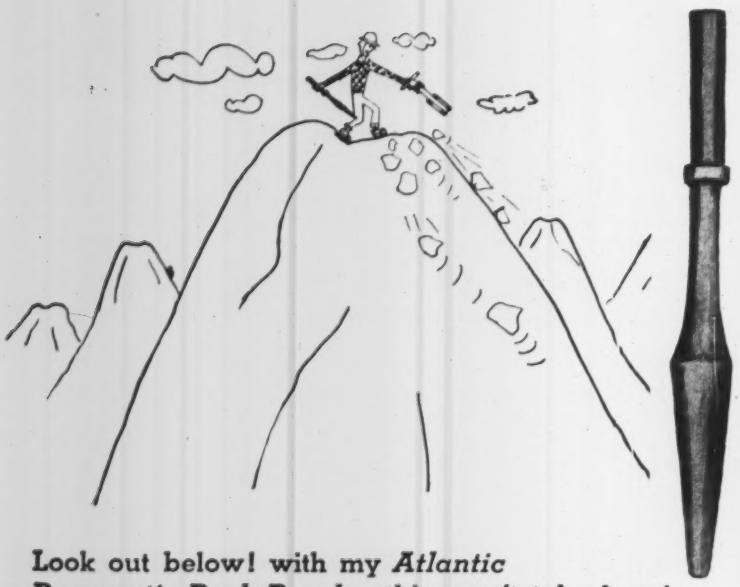


Scraping and dirt moving for Don L. Builders, Inc., Kansas City, Mo., this HD-11 Tractor and 7½-yd Allis-Chalmers scraper combination moves 18 yd every six minutes on a 300-yd haul. Operator Ralph Alewel states, "This tractor has plenty of power. I'm running in third gear most of the time. The unit is much more comfortable than any I've been on."

CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

Your Allis-Chalmers dealer can tell you where to see HD-11's in action in your neighborhood.

ALLIS-CHALMERS



Look out below! with my *Atlantic Pneumatic Rock Breaker* this won't take long!

The Atlantic Pneumatic Rock Breaker breaks rock almost 4½ times faster than the old feather and wedge method! Eliminates slow plug and feather method, explosives, upkeep. Made from specially heat-treated Atlantic Tool Steel. Needs no sharpening, no grinding. Variety of sizes. Fits standard pavement breaking machine. Send for Booklet 3.

ATLANTIC STEEL CORP.
Since 1918 . . . Always First with the Finest!
1775 Broadway, New York 19

PLANMASTER SECTIONAL STEEL FILING CABINETS

of heavy gauge steel welded to form. For blueprints, maps, art, etc.

STACOR

LIFETIME STEEL drafting equipment

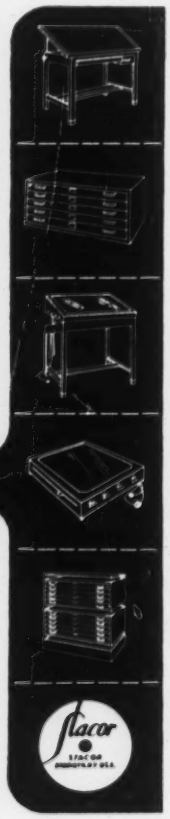
ENGINEERED for your job!

Expertly designed steel equipment of finest quality is a lifetime investment in drafting room efficiency. The Stacor line of modern, functional drafting tables, tracing tables, and blue print filing cabinets have proven acceptance among engineers, draftsmen and architects everywhere!

Write for Your Copy of the Stacor Catalog Today!

STACOR EQUIPMENT CO.

786 East New York Avenue • Brooklyn 3, New York



. . . New Products

Steel Folding Doors Require Little Space

New steel folding doors for residential or commercial building closets provide full width opening, yet require minimum clearance space. Produced in 3, 4, and 5 ft widths, the doors consist of four-hinged panels, so that when fully open, the projection into the room is minimal. The 3 ft door projects past the door frame only 5 in., the 4 ft unit only 7 in., and the 5 ft unit 9 in. The doors are made in two heights, 6 ft 8 in. and 8 ft. They are finished in a flat prime gray over which additional paint or paper is applied, and the 6 ft 8 in. units are available in a birch finish.

The door pivots on nylon bearings and guides, and is simply installed by means of screw-on brackets. The American Welding and Manufacturing Co., Warren, Ohio.

Proportioning Batcher Produces Uniform Mortar

A simple tilting hopper that dumps automatically when loaded to the proper level eliminates some of the guesswork and human error in mixing small quantities of mortar.

The Gadsden batcher automatically compensates for moisture variations in sand, since the volume rather than the weight of material in the bowl triggers the dumping action.

The batcher is adjustable for capacities from 2½ to 5 cu ft, and once set, remains locked in position to maintain consistent measurement. Technical Advisory Service on Construction, 1801 9th St., N. W., Washington 1, D. C.

For Trouble-Free Service, Infiltration-Proof Joints

COLUMBIA, MO.

Specifies

CLAY PIPE

COLUMBIA, MISSOURI'S latest municipal sewerage improvement project called for more than 42,000 feet of 24 inch to 36-inch Vitrified Clay Pipe. A large section of the project is located in the city's attractive university district, where officials are especially interested in avoiding unsightly repair jobs in the years ahead. Other parts of the line were laid adjacent to a creek, making leak-proof, infiltration-proof joints a "must." With these requirements in mind, officials in charge of the project specified Vitrified Clay Pipe . . . the *only* pipe that never wears out. A wide variety of new jointing methods, developed through industry-wide research, insure *absolutely tight* lines—even in high-water-table areas. For *permanent* service, always specify and install Clay Pipe. *It's guaranteed for half a century.*

FOR COLUMBIA, MO.—S. E. Grundler, City Engineer

CONSULTING ENGINEERS—Black and Veatch, Kansas City, Mo.

CONTRACTORS: B & G Construction Company, Carthage, Mo., Supt. Roy E. Fuller, and Foreman Lewis Dye.

Vitrified

CLAY PIPE

NEVER WEARS OUT!

C 156-1

NATIONAL CLAY PIPE MANUFACTURERS, INC.
1820 N. Street, N.W., Washington 6, D. C.

206 Connally Bldg., Atlanta 3, Ga.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio

Progress in Public Health - Through Clay Pipe Research

Utilities pipeline contractor

Averages 20 feet of trench per minute, digs 2 to 4 jobs per day with each of his Clevelands

1000 feet of complete pipeline construction—trench digging, pipelaying, backfilling and backfill compaction—is an average day's work for each crew of F. H. Linneman, Inc., pipeline and utilities contractor of Denver. Most of this work is on 2-, 4- and 6-inch pipelines for the many new housing developments in the Denver area.

With a Cleveland Trencher opening up trench at an average rate of 20 feet per minute, a typical Linneman crew will do 2, 3 or 4 complete pipeline jobs in an 8-hour day—jobs that run from 50 to 1000 feet each in length. One of these crews has a record day's production of 7 complete jobs.

Currently operating 7 Cleveland Trenchers, Linneman specializes in utilities work—gas, water and sewer line construction. Equipment-minded and especially maintenance-conscious, he has consistently employed Clevelands ever since he began his contracting business in 1946.

Fast portability of equipment is essential in Linneman's tight-scheduled operations. His Clevelands can be loaded on their low-bed trailers in less than 10 minutes time, ready to roll safely from job to job at legal limit speeds.

"Maintenance costs on Clevelands are appreciably lower" says owner of 7

Here is what F. H. Linneman has to say about trenchers:

"In the type of work we most generally perform, in the city especially, we have found Clevelands best suited to our operations because of their narrow-width construction, compactness and speed. They enable us to work in close places and keep trenching ahead of follow-up operations, a decided advantage.

"We have employed Clevelands in our work since we began contracting in 1946. We have seven of them at the present time, the oldest being a Cleveland Model 95 purchased in 1948. We have no record of the miles this machine has dug, but feel that it would be a near-record. Our maintenance costs on it have been extremely low.

"Our over-all maintenance costs on Clevelands are appreciably lower than on other trenchers we have operated. This is another reason why we have purchased more Clevelands than any other make. We have also found it easier to train operators for Clevelands than for any other make. Our newest Cleveland, a "240," was delivered only last week by H. W. Moore Equipment Co., here in Denver."

THE CLEVELAND TRENCHER COMPANY • 20100 St. Clair Ave. Cleveland 17, Ohio

CLEVELAND

O. F. Sieder

O. F. Sieder Retires

H. K. Ferguson executive supervised building of many landmarks

Otto F. Sieder, structural engineer, has retired as vice-chairman of the Board of The H. K. Ferguson Company, industrial designers and builders of Cleveland, Cincinnati, and San Francisco.

An engineering graduate of Lafayette College, Sieder, now 74, has been active in engineering and construction for more than half a century.

While with Purdy & Henderson, he helped design New York City's Flatiron Building and later went to South America with Milliken Brothers engineering firm, where he built some of the first tall buildings south of the equator.

For nearly 30 years, Sieder served as vice-president and chief engineer of Levering & Garrigues (New York steel fabricating firm later purchased by Bethlehem Steel Company), which built the Roxy Theater, Bank of Manhattan (40 Wall Street), the Chanin Building and other New York City landmarks.

During World War II, Sieder supervised the Army's $4 billion dollar construction of ordnance and chemical warfare plants in his capacity as director of the industrial construction division of the Office of the Chief of Engineers.

He joined Ferguson in 1945 as executive vice-president and general manager and was elected president in 1953. While with Ferguson, he directed the design and construction of many multi-million industrial process plants in the United States and abroad.

Edward S. Wright

Blaw-Knox Company, Pittsburgh, Pa., has elected Edward S. Wright to the newly-created post of vice president in charge of construction in the company's Chemical Plants Division.

Wright has served as construction superintendent and manager of construction since joining Blaw-Knox in 1942.

E. G. Robbins

Walter Kidde Constructors, Inc., engineers and builders of New York, N. Y., and Houston, Texas, have elected E. G. Robbins vice president in charge of construction.

A graduate engineer, Robbins has supervised construction on many projects since joining Kidde 28 years ago.

Lee Turzillo

Former Prepakt Executive Forms Construction Firm

Lee Turzillo, former executive vice-president of Intrusion-Prepakt, Inc., and the Prepakt Concrete Company of Cleveland, Ohio, has organized his own firm under the name of Lee Turzillo Contracting Co.

Turzillo, whose firm will be headquartered in Cleveland, has directed a number of big concrete construction jobs both here and abroad, including foundation work on the Mackinaw Straits Bridge and on the Texas tower radar station off the coast of Massachusetts.

Men and Job Briefs . . .

• **Associations**—The Central California chapter of AGC elects **Paul A. Elsner,** general manager of Swinerton & Walberg Co., San Francisco, as president. . . . **Francis Bell,** of the U. S. Geological Survey, takes over as head of ASCE's Colorado section. . . . **Ernest S. VanDemark** is named chairman of the construction industries section of Delaware Chamber of Commerce.

• **Business**—Worden-Allen Company, Milwaukee, Wis., consulting-contracting engineers and steel structure manufacturers, names **Eugene J. Tiefenthaler,** former executive vice president, as president, succeeding **Phillip D. Krueger,** who becomes board chairman. . . . **Peter S. Pedersen, Jr.** is elected president of Wonder Building Corporation, Chicago manufacturer of prefabricated steel buildings, and **Peter S. Pedersen, Sr.** becomes board chairman.

How a Seismic Survey located bedrock for the Massachusetts Turnpike

The Massachusetts Turnpike, a 123-mile 239-million superhighway scheduled for completion in November 1956, faced a tight time schedule. The Massachusetts Turnpike Authority, through Howard, Needles, Tammen & Bergendoff, the General Consulting Engineers, called upon Gahagan to help locate bedrock through a seismic survey. Gahagan crews began work on Aug. 9, 1954 and finished on May 4, 1955. A total of 45,000 seismic instrument readings were taken. Combined with check borings at key spots, the seismic results enabled section engineers to construct over 1,400 cross-section profiles at 50-foot intervals. For highways, dams, power plants, bridges, etc., seismic surveys save time and money; provide a wealth of data on the subsurface. For full details write Ken Sandbach, Vice Pres., Geophysical Survey Division, Gahagan Corporation, 90 Broad St., New York 4, N. Y.

Gahagan has been a leader in the hydraulic dredging field for over fifty years

ANOTHER
GAHAGAN
CASE HISTORY

WHAT'S AHEAD FOR CONSTRUCTION IN 1956?

- Heavy Construction Forecast
- Government Forecast
- Backlog
- Financing
- Materials
- Equipment
- Costs
- Employment
- Buildings and Housing
- River Use and Control
- Transportation
- Water Supply and Sanitation

GET THE ANSWERS IN THE ENGINEERING NEWS-RECORD

ANNUAL REPORT AND FORECAST ISSUE—

FEBRUARY 16, 1956

Obituaries

Charles A. Cummins, 73, civil engineer, died Dec. 21 in Baltimore. Known as the "Bonaparte of Building," he was responsible for the construction of one of the South's earliest skyscrapers in addition to extensive bridge, tunnel and dam work below the Mason-Dixon Line. He was also instrumental in the founding of two of the largest building firms in the Baltimore region, the Consolidated Engineering Company and the Cummins Construction Company. Born in Baltimore, Cummins attended City College and won a senatorial scholarship to St. John's College, Annapolis, graduating in 1903. He commenced his career with the Charles Stockhausen Company as assistant estimator resigning in 1911 to join George P. Zouck in founding the Consolidated Engineering Company. The Camp Greene, N. C. contract where Consolidated improved 44,000 acres of virgin land and built 2,000 homes in four months, including lighting and sewerage, was one of Cummins' major tasks. The $17,000,000 contract for the Department of Commerce Building, the Lord Baltimore Hotel, the Library of Congress annex, University Hospital, the Cincinnati Post Office, Municipal Courts Building in Washington, Edgewood Arsenal and Cedar Point Naval Base at Patuxent were added to Cummins' list.

Frank R. Lanagan, 73, former city engineer in Albany and Schenectady, N. Y., died Dec. 15 in Old Bennington, Vt. He served as city engineer of Albany from 1912 to 1922 then going into private business as consulting engineer. In 1926, he was named a deputy New York State engineer. Lanagan graduated from Rensselaer Polytechnic Institute in 1905.

Frank N. Kneas, 80, structural engineer who helped design Philadelphia's Franklin Institute, died Dec. 25 in Philadelphia. During his service as chief engineer in the architect firm of John T. Windrim, from 1916 to 1934, he designed the foundations and structural features of over 300 Philadelphia buildings. Among some of his buildings are the Norristown, Pa., High School, the Dauphin County Court House at Harrisburg, Pa., and residence halls at Pittsburgh and Pennsylvania Universities. He was the inventor of several engineering devices, a drop penetration rod and the cantilever system for framing steel. Kneas, a member of both the American and Pennsylvania Society of Engineers graduated from Lehigh University in 1898.

America has homework to do!

THERE'S PROBABLY a lot about your town that makes you want to brag a bit about it.

But there's one thing you *can't* be proud of. And it's a shame you share with just about every other community in America.

The homes where far too many people live are a disgrace. Slums, semi-slums, housing blight are with you. Fixing them up is the homework to be done.

If your town is like most in the U. S., here's what the figures show: 1 out of every 10 homes are rock-bottom slums. Nearly one-half urgently need basic repairs.

But slums are something that is happening on the other side of town, you may say. The problem isn't mine.

Slums are YOUR homework

Distance is no barrier against the threat and cost of housing blight.

Your taxes go up because it takes more money for your town to fight the diseases and delinquency and poverty spawned in the slums. The security of your family goes down because the slum is the natural parent of crime.

Where your business comes in

Every firm has a responsibility toward the town where it's located. Part of it is to support community improvements as any other good citizen would.

Some slums are beyond repair. They must be torn down and a fresh start made. Others can be made to conform to accepted living standards. So it is up to you to get behind every sound program which seeks to provide adequate housing for all our people.

Civic and individual groups must have business backing . . . *your* firm's backing if they are to succeed.

Follow the course of Action!

A group of Americans from every walk of life has joined together in a non-profit organization to combat home and community deterioration, A.C.T.I.O.N., the American Council To Improve Our Neighborhoods.

Send today for a free copy of "ACTION." It explains what A.C.T.I.O.N. is and proposes to do. It lists booklets, research, check-lists, and other material which can help you. Address P. O. Box 500, Radio City Station, New York 20, N. Y.

ACTION

American Council To Improve Our Neighborhoods

THE SIMPLICITY – THE SPEED – THE ECONOMY OF

V-LOK

INTERLOCKING STRUCTURAL MEMBERS

WORK TO YOUR ADVANTAGE TO BUILD PROFITABLE VOLUME

THEN — you discover some of the plus-values that benefit both the designer and builder:

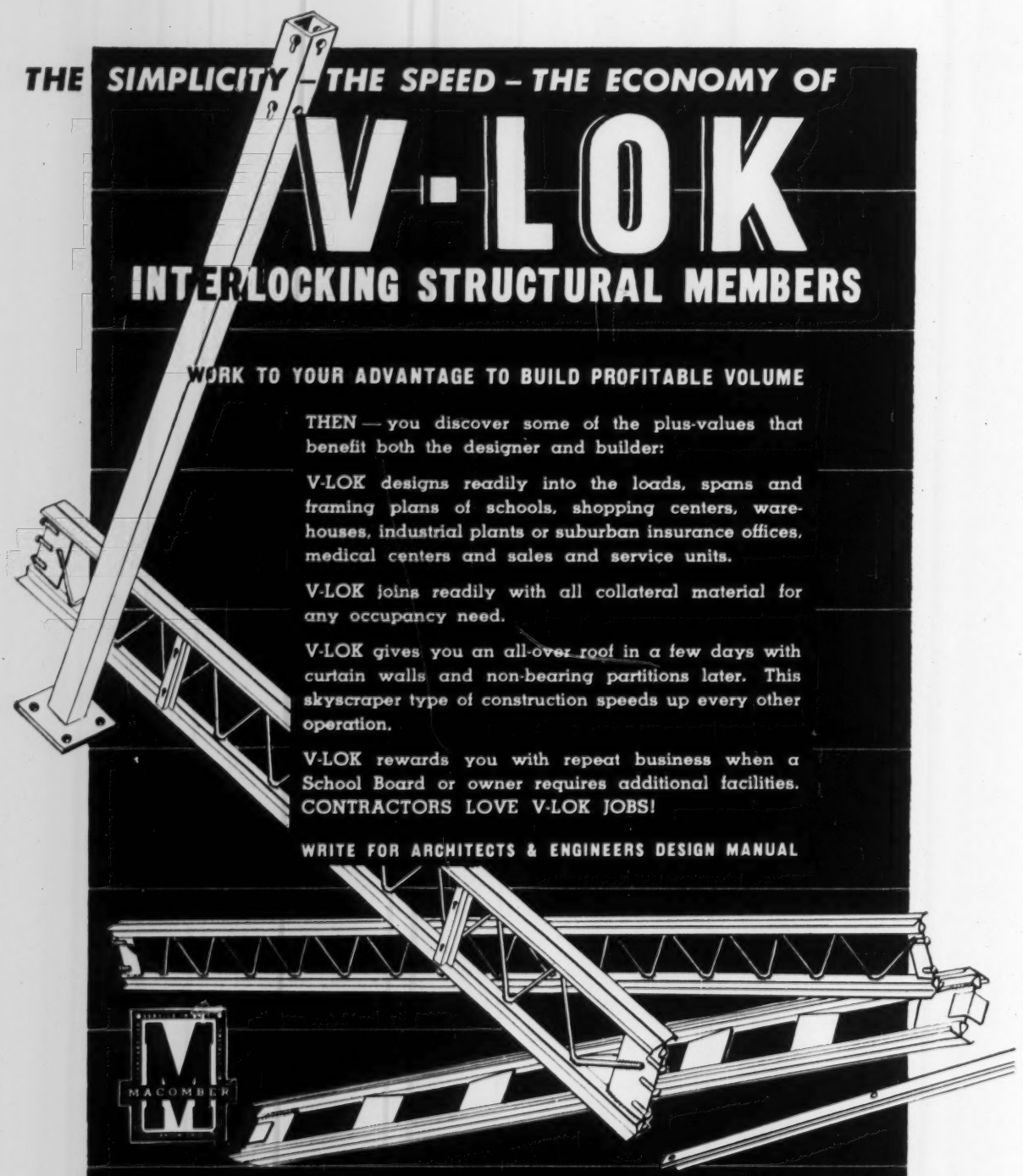
V-LOK designs readily into the loads, spans and framing plans of schools, shopping centers, warehouses, industrial plants or suburban insurance offices, medical centers and sales and service units.

V-LOK joins readily with all collateral material for any occupancy need.

V-LOK gives you an all-over roof in a few days with curtain walls and non-bearing partitions later. This skyscraper type of construction speeds up every other operation.

V-LOK rewards you with repeat business when a School Board or owner requires additional facilities. CONTRACTORS LOVE V-LOK JOBS!

WRITE FOR ARCHITECTS & ENGINEERS DESIGN MANUAL



STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER • INCORPORATED

CANTON 1, OHIO

ENGINEERING • FABRICATING AND ERECTING

NAILABLE STEEL JOISTS • LONGSPANS • BOWSTRING ROOF TRUSSES • METAL DECK • V-LOK STEEL FRAMING • STRUCTURALS

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

Jan 12 — Iron and Steel Products; Pipe
Jan 19 — Wood Products, Glass, Explosives, Chemicals
Jan 26 — Wage Rates, Building Board, Lath, Insulation, Clay Products, Lime, Paint, Roofing, Plaster

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.* truckload del.* per block		CONCRETE Ready Mixed 1:2:4 ave. 50 c.y.‡ del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$4.12a	$3.71a	$3.61	$2.75	$2.75	$2.50‡	$2.14	$2.24	$1.45	$1.65	$0.18	$0.195	$13.25g
Baltimore	4.04a	3.63a	3.43	2.70‡a	2.70‡a	2.20‡a	2.75‡a	2.80‡a	1.95‡a	1.90‡a	18	18a	12.15
Birmingham	3.72	3.00e	...	2.53n	2.53n	2.08n	2.75	2.75	1.35	1.55	165	165	11.55
Boston	4.67b	4.21b	4.47	3.00a	3.00a	3.00a	1.60a	1.75a	...	...	23	265a	13.00A
Chicago	3.98a	3.57a	3.72	3.60‡b	3.60‡b	3.75‡b	3.50‡b	3.50‡b	2.25‡	2.25‡	23	23b	13.50
Cincinnati	3.95c	3.55c	3.73	2.19‡c	2.24‡c	2.24‡*	2.54‡c	2.54‡c	...	...	195	225a	12.20
Cleveland	N.A. in C.L.	3.54e	...	2.05ef	1.85f	1.65	4.10‡a	4.10‡a	3.35‡a	3.15‡	...	22	15.45
Dallas	3.15a	2.85a	2.93	2.18	2.28	1.84	2.22	2.38	...	...	11e	267.5	9.40
Denver	4.59a	4.09a	4.59	1.85	2.00	1.20	...	...	...	...	23	255a	10.70
Detroit	4.04a	3.45a	3.69	4.50‡b	4.50‡b	4.00‡b	3.75‡	3.75‡	4.25‡	4.25‡	22	24a	14.20
Kansas City	4.20b	4.00b	4.00	1.65	1.65	2.00‡a	2.00‡a	2.00‡a	...	...	20a	24c	13.25b
Los Angeles	4.92ch	4.46ch	5.40	2.31‡a	2.51‡a	2.31‡a	2.16‡a	2.31‡a	...	...	145fm	255m	12.46A
Minneapolis	4.35a	3.94a	3.86	2.70‡ag	2.70‡ag	1.60‡ag	3.25‡ag	3.25‡ag	...	...	19	...	13.35f
Montreal	3.11d	2.86d	...	1.95‡a	2.20‡a	2.25‡a	1.95‡a	2.20‡a	...	...	20	20a	10.80ek
New Orleans	3.55a	3.15a	3.48	2.44	2.44	2.00	...	...	1.45	1.65	275	...	13.65
New York	4.37a	3.96a	3.71	3.05hk	3.05hk	2.00hk	2.80hl	2.80hl	...	...	...	...	15.50an
Philadelphia	3.88/4.27‡a	3.57/3.94‡a	3.73/3.78‡	2.85‡op	2.85‡op	2.35‡op	2.70‡	2.80‡	2.00	2.35	.22/.28	...	13.20de
Pittsburgh	4.15a	3.76a	3.75	2.40‡	2.40‡	2.20‡	2.60‡	2.60‡	2.15	2.15	25d	31	14.00
St. Louis	3.95/4.18c	3.50/3.76c	3.55/3.97	3.25am	3.00am	2.40/3.00am	1.60j	1.70j	1.50	1.50	22	28c	13.25
San Francisco	3.83e	3.39e	...	2.02	2.02	2.12	2.17	2.17	...	...	24	28cl	12.15c
Seattle	4.30a	3.85a	...	4.00‡bm	4.00‡bm	4.00‡bm	4.50‡bm	4.50‡bm	...	...	26	37	13.30j
Toronto	3.97	3.77	3.77	2.40	2.40	2.00	2.00	2.00	2.00	2.00	25	35c	14.15

‡ Delivered. * Prices incl. dealers discount except as noted.

CEMENT: *a Less 10¢ disc, 15 days. *b Less 2% disc, 15 days. *c Less 10¢ disc, 10 days. *d Truckload lots, deliv. 10¢ disc, 20 days. *e Truckload lots, destination price. *h LCL.

SAND, GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons or more. *e ½". *f Pea gravel. *g Less 5% for cash. *h Less than 5 tons. *i Plus 5% mun. & prov. tax *j F.o.b. quarry. *k Barge lots and. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars. *o 1-3 mi zone. *p Add 10¢ for ea. add'l mi zone.

CONCRETE BLOCK: *a Cinder *b Waylite. *c Haydite. *d Celocrete *e 8¼ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *l Less 2% for cash *l F.o.b. plant San Rafael. *m F.o.b. yard.

READY MIXED CONCRETE: *a 5 cu. yds. or over del. Man. *b 25 cu. yds or more *c 10-100 cy. brackets. *d 1-3 mi. zone. *e 2,000 lb comp. *f 2,500 lb. comp. *g Less 25¢ disc, 15 days. *h Less 50¢ for cash. *i 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 5% mun. & prov. *l 1-2½-3½. *m F.o.b. yard. *n Plus escalator clause. *o Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 40¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.05†	Buffington, Ind	$3.10†	Steelton, Minn	$3.20†	Muskegon, Mich	$3.15†	Toledo, O	$3.15†
Clinchfield, Ga	3.05†	Independence, Kan	2.95†	Leeds, Ala	3.00†	Saginaw, Mich	3.15†	Milwaukee, Wis	3.20†
Kingsport, Tenn	3.05†	Hannibal, Mo	3.10†	Duluth, Minn	3.20†	Wyandotte, Mich	3.15†	Green Bay, Wis	3.15†
West Des Moines, Iowa	3.10†	Northampton, Pa	3.05†	Hudson, N. Y	2.75†	Buffalo, N. Y	3.25†	Ironton, O	3.15†
Nazareth, Pa	3.05†	Universal, Pa	3.20†	Alpena, Mich	3.05†	Oswego, N. Y	3.30†	Montreal City	2.56
Bath, Pa	3.05†	Waco, Tex. (+ 10¢ tax)	3.10†	Detroit, Mich	3.15†	Cleveland, O	3.15†	W. Winfield, Pa	3.20†

† *Prices to hold for first quarter of 1956.*

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT MC per ton		ROAD OIL Per gal.	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8-½ in. carload lots	Wood per sq. yd. 3½ in. 18-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	...	...	...	$27.60	$40.00	$0.115	$0.23	$0.114Pw	$0.276Pw	$0.15	$0.15	$0.25
Baltimore	150.00‡	...	...	21.50s	...	.092s	0.182s	106wE	195wE	10s	10.5s	0.195s
Birmingham	...	57.50s	...	...	...	...	...	...	...	...	...	...
Boston	...	...	...	22.00ap	35.00ap	22.00as	30.00as	99aF	195	09.5a	095aG	175aG
Chicago	155.00‡	85.00‡b	3.75/3.80‡j	20.85b	30.85b	19.85bv	29.85bv	09625bwH	17625bwH	0775b	...	...
Cincinnati	...	...	...	...	...	...	...	...	...	...	...	...
Cleveland	200.00	77.00d	5.03g	23.00A	...	23.00A	...	1025AwF	...	...	1025AG	18AG
Dallas	e	40.00	e	24.05	43.09	1016	2103	28.91	50.44	.098	.1087	.1960
Denver	...	50.00	...	...	...	...	...	...	...	...	...	...
Detroit	...	111.00	...	27.21	...	27.21e	...	1188wI	...	0066	...	.211
Kansas City	e	e	e	15.00cl	...	17.00e	...	07wJ	...	0575c	0.11	...
Los Angeles	e	...	e	17.00dmx	...	17.00dzx	...	19.00dx K	...	18.00dx	0875j	1875j
Minneapolis	...	...	2.97A	25.00	...	25.00	...	0.10w	...	0.095	1075	...
Montreal	e	e	e	27.00n	39.60n	135n	198n	16.50nwE	20.90nwE	132ns	197ns	239ns
New Orleans	...	...	...	17.50e	o	17.50ex	o	085ew	o	085B	085BI	...
New York	...	...	2.85f	23.80wCD	44.32wD	22.80wCD	43.57wD	1023wCDF	1880wDF	...	1023CD	1918D
Philadelphia	175/185	110/120	4.06	22.00	...	...	...	095wF	...	095	...	...
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00E	40.00E	098	.11	224]
St. Louis	...	...	...	18.76f	...	.1704	...	0863fwM	...	0.1575	.171	...
San Francisco	...	67.50c	...	20.00q	37.00q	20.00qks	37.00qks	21.00qN	38.50qN	19.75e	09q	18
Seattle	...	...	...	23.50z	37.50h	18.25hs	...	25.50K	...	20.75hs	09h	10hr
Toronto	...	...	4.03	33.80	45.84	0.19	0.24	0.29wc	0.25wc	0.20	0.20	24

h Delivered.

PAVING BRICK & BLOCK: *a CL. *b 3 x 4 x 8. *c 2½ x 8¼ x 4. *d LCL, truck deliveries. *e Not used. *f 2" interior 6# treat. *g 3" *h 2" tr, 8# *i 3 x 3⅝ x 8½. *j 2½", 6 lb. tr.

ASPHALTS: *a Price at plant, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segunda. *e F.o.b. Baton Rouge *f F.o.b. Hartford, Ill. *g F.o.b. Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 50-110 penetr. *l Less than 100 penetr. *m 40-80 penetr. *n Fed. tax included; add 5% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 60-70 penetr. *q 40-85 penetr. *r In customer's drums. *s Shipped in drums, per drum. *t 85-200 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks. *y F.o.b. Oakland *z F.o.b. Edmonds *A F.o.b. refinery, Cleveland. *B F.o.b. Destrehan, La. *C Bulk. *D Prices based on transporting to Manhattan via truck. *E RC. *F Also RC. *G Also MS, SS. *H RC 0-5 incl. *I MC 4. *J MC, RC .0675. *K MC 3, 4 & 5. *L Ms. *M MC 1.5, RC 1.5, .099. *N MC 3. *P F.o.b. refinery Savannah $0.09 gal., tank cars; $0.20 gal., drums.

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **Me., Limestone**—CHAPEL—BA 1/10—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., base chapel and NCO club, Loring Air Force Base, ENG-19-016-56-82, $500,000. Plans deposit $10. CD 12/9.

MASSACHUSETTS—BA 1/17—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Ware—hy. and bridge constr. Rte. 9. Plans deposit $15; adv. ENR 1/5.

† **Me., Limestone**—STORAGE BLDG.—BA On Or About 1/20—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., motor vehicle storage bldg., Caribou Air Force Station, ENG-19-016-56-76, $200,000-$300,000.

MASSACHUSETTS—BA 1/24—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Boston—hy. and bridge constr. (Southeast Expressway) (Section 1 Neponset River to Neponset Circle). Plans deposit $35; adv. ENR 1/5.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

NEW JERSEY—BA 1/10—State Hy. Dpt., 1035 Parkway Ave., Trenton,
Bergen Co.—Rte. 4 Sect. 3 E. from Hackensack River to Lafayette Ave., Barrier Curb, Teaneck Twp. 2.26 mi. Plans deposit $5. CD 4/18.

† **Md., Patuxent River**—CULVERT—BA 1/18—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., replacement of culvert at Naval Air Station, NOY 93286. Plans deposit $10.

Pa., Bethlehem—BA 2/2—Bethlehem Auth., 6 W. Broad St., Penn Forest Dam and reservoir and appurtenant work in connection with Wild Creek Gravity Water supply system. Plans deposit $25. Morris Knowles, Inc., 1312 Park Bldg., Pittsburgh, engr. adv. ENR 1/5.

† **New York**—BA about 2/3—U. S. Eng., Engineer Park, Niagara and Bridge Sts., Buffalo, Zone 7, fabrication, delivery of 6 wire rope fenders and 2 auxiliary rope fenders, complete with operating machinery, St. Lawrence Seaway, St. Lawrence River, CIVENG-30-023-56-27. Plans deposit $25. CD 9/9/54.

† **New York**—BA about 2/4—U. S. Eng., Niagara and Bridge Sts., Buffalo, Zone 7, fabrication, delivery of 4 stiffleg derricks, complete with operating machinery, St. Lawrence Seaway, St. Lawrence River, CIVENG-30-023-56-33. CD 9/9/54.

† **New York**—BA about 2/11—U. S. Eng., Engineer Park, Niagara and Bridge Sts., Buffalo, Zone 7, fabrication, delivery of vertical lift gate operating machinery, Robinson Bay Lock, St. Lawrence Seaway, St. Lawrence River, CIVENG-30-023-56-34. Plans deposit $25. CD 9/9/54.

BUILDINGS—BA

N. Y., Bay Park—GARAGE AND SHOP—BA 1/17—County Executive, Nassau Co., Old County Court House, Mineola, general constr., heating, plumbing and electrical work for Nassau County Dpt. of Public Works maintenance garage and shop bldg. for sewage treatment plant sewage disposal Dist. No. 2. Contr. 1002-2P-14-15-16-17. Extended date. CD 12/13.

HEAVY CONSTRUCTION—LB & CA

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
New Enterprise Stone & Lime Co., New Enterprise, Pa. CA $918,852. imprv. 3.06 mi. on T.R. 220 Blair Co. CD 12/7, under LB.

† **Dist. P. Wks. Office**, Potomac River Naval Command, Naval Gun Factory, Wash., D. C. cancelled bids to have been opened Dec. 28, computer bldg. "B" David W. Taylor Model Basin, NOY 91994, CARDEROCK, MD. CD 11/9.

BUILDINGS—LB & CA

▲ **Birchwood Park at Locust Grove**, c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. Est. $2,400,000. 120 HOUSES on tract on Northern State Parkway near Exit 36, HICKSVILLE, N. Y.

▲ **Beverly Hills Estates**, c/o Albert B. Meklenburg Organizations, 1038 Northern Blvd., Roslyn, N. Y. Owner Builds. Est. $1,500,000. 75 HOUSES on tract at Old County Rd. east of Wolf Hill Rd., HUNTINGTON, N. Y.

Pond Ridge Knolls, c/o Long Island Homes, 168-12 Hillside Ave., Jamaica 32, N. Y. Owner Builds. Est. $550,000. 40 HOUSES on tract at Melville Rd. and Magarus St., HUNTINGTON, N. Y.

▲ **Paul J. Roche, Inc.**, Leonard Blvd., and Highland Ave., New Hyde Park, N. Y. CA $1,834,750. general constr., Junior Senior High SCHOOL, North Jerusalem Ave.; CA $729,300. Lee Road Elementary SCHOOL; CA $349,200. Summit Lake SCHOOL addn., LEVITTOWN, N. Y. District 5 School Bd., Levittown, N. Y. Grand total $2,913,250. CD 12/30/54.

South Park Estates, c/o N. M. Obedin Co., 124 Jackson St., Hempstead, N. Y. Owner Builds. Est. $375,000. 25 HOUSES on tract at Roosevelt Ave. and Rose St., MASSAPEQUA PARK, N. Y.

Sawmill Estates, c/o Lane Realty, 107-40 Queens Blvd. Forest Hills, N. Y. Owner Builds. Est. $360,000. 20 HOUSES on tract on Sawmill Rd. between Oakfield Ave. and Pea Pond Rd., NORTH BELLMORE, N. Y.

St. James Knolls Home, c/o Long Island Homes, 168-12 Hillside Ave., Jamaica 32, N. Y. Owner Builds. Est. $400,000. 40 HOUSES on tract near Rte. 25A, ST. JAMES, N. Y.

▲ **Salem Park Homes**, c/o Long Island Homes, 168-12 Hillside Ave., Jamaica 32, N. Y. Owner Builds. Est. $1,000,000. 48 HOUSES on tract at Washington Ave. north of Sunrise Hy., SEAFORD, N. Y.

Shapiro Engr. Corp., 1413 K St. N. W., Wash., D. C. CA Est. $750,000. 7 story rein.-con., brick APARTMENT 84 units 6440 Luzon Ave. N. W., WASH., D. C. Shapiro, Inc., 1413 K St. N. W., Wash., D. C. W. Shoemaker, 927 15 St. N. W., Wash., D. C., archt.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

SOUTH

HEAVY CONSTRUCTION—LB & CA

† **MacDougald Const. Co.**, 1625 Northside Dr., N.E., Atlanta, Ga., LB $765,815, parking apron, Robins Air Force Base. Eng.-133-56-23, MACON, GA. U. S. Eng., 200 East St. Julian St., Savannah, Ga. Bids Dec. 20. CD 10/31.

KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort, rejected bids Nov. 30. bridge superstructure c. conc. 0.189 mi., S 215 (3), SP 58-37, Johnson Co. LB $488,131. CD 12/8, under LB.

W. E. Caldwell Co., 200 E. Brandeis St., Louisville, Ky. LB $55,285. Contr. A design, fabrication and constr. of steel stand pipe on Haunz Lane and Whipps Mill Rd.; LB $251,335. Contr. B. dismanting moving, re-erecting 1.2 m., elevated water tank from Crescent Hill to new site, LOUISVILLE, KY. Louisville Water Co., 435 S. Third St., Louisville, Ky. Bids Dec. 20. CD 11/25.

Clark, Stewart & Witt Co., 328 Georgetown St., Lexington, Ky. CA $106,115. filtration plant and station, WALTON, KY. City, Walton, Ky. Bids Dec. 7, awarded Dec. 19. CD 11/17.
R. C. Durr, Nicholson, Ky. CA $45,390, reservoir and dam. (Walton, Ky..

BUILDINGS—LB & CA

West Baton Rouge Parish Police Jury, Port Allen, La. rejected bids Oct. 14. court house with jail, PORT ALLEN, LA. LB $698,703. CD 11/1, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

Wis., Milwaukee—BA 1/10—City, City Hall, reconstr., Viaden S. 6 Street viaduct on east side, $90,000. Plans deposit $10. Geo. C. Ashton, bridge engr., Lloyd D. Knapp, city engr. CD 12/3/43.

† **Illinois**—AAA GUN SITES—BA On Or About 1/17—U. S. Eng., 475 Merchandise Mart, Chicago, Zone 54, AAA gun sites (1) 50, 107 and Aberdeen Sts.; (2) 53, 103 and Cicero Sts.; (3) 60, 79 and Nashville Sts., Oaklawn; (4) 66, East Ave. and Plainville Sts., LaGrange; (5) 71, Cermak Rd. and Gardner St., LaGrange; (6) 76, North and First Aves., Elmwood Park; (7) 82, River Rd. and Lawrence Ave.; (8) 83, Milwaukee and Grennen Sts., Skokie, ENG-11-032-56-39. Plans deposit $25.

† **Indiana**—MISC. BUILDINGS—BA On Or About 1/20—U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill., const. misc. bldgs., structures and related work in Porter Co., vicinity of Hobart, incl. three underground storage structures, generator bldg., etc., ENG-11-032-56-22. Plans deposit $100.

BUILDINGS—BA

Ill., Skokie—PLANT—BA 1/6—Ralston Steel Co., St. Louis and Jarves Aves., steel fabricating plant. $320,000. R. L. Friedman, 716 Central St., Highland Park, archt.

HEAVY CONSTRUCTION—LB & CA

OHIO—State Hy. Comn., Columbus,
National Engrg. & Contrg. Co., 1968 W. Third St., Cleveland, O., CA $702,498, est. $735,000, Type T-71, 0.693 mi. C. R. 11, S-1125 (1), Village of Moreland Hills and Bentleyville, Cuyahoga Co. Bids Dec. 13. CD 12/20, under LB.

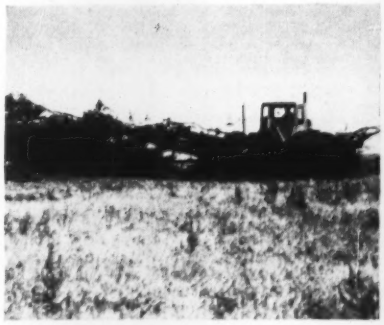
▲ **OHIO**—State Hy. Comn., Columbus,
O.—**Launder & Son, Inc.**, Station E. Box 6, Toledo, O. CA $2,419,995, est. $2,594,200, Type T-71 and structures 4.02 mi. U. S. R. 20, Sect. 14.60, F-585 (11) Part 1, Sandusky Co.;
O.—**A. J. Baltes, Inc.**, 11 Olive St., Norwalk, O., CA $3,331,095, est. $3,503,200. Type T-71 and structures 6.033 mi. U. S. R. 20, Sect. 17.62, F-585 (11), Part 2, Sandusky Co.;
O.—**S. J. Groves & Sons Co.**, 500 Wesley Temple Bldg., Minneapolis, Minn., CA $2,372,924, est. $2,496,500, Type T-71 and structures, 2.508 mi. S. R. 120, Sect. 3.93, (Part No. 9 Toledo Expressway Sys.), City of Toledo, Lucas Co. Grand total $3,124,014. Bids Dec. 13. CD 12/20, under LB.

Penker Const. Co., 1030 Summer St., Cincinnati, O., LB $503,425 (3 bidders) pump station and connecting sewers, part of Millcreek Sewage Plant. CINCINNATI, O. City City Hall, Cincinnati, O. Havens & Emerson, Leader Bldg., Cleveland, O., engrs. Bids Dec. 13. CD 11/23.

† **Schumaker Const. Co.**, E. Michigan Ave. and Warneke Rd., Michigan City, Ind., CA $248,620. proof range facilities, Kingsburg Ordnance Depot, LAPORTE, IND. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill. Bids Dec. 1, awarded Dec. 19. CD 11/11.

Pictures of a tractor in a hurry!

On this road-widening job near Denison, Iowa, a grove of 60 ft. trees ranging from 10 to 15 inches in diameter had to be removed. Tournatractor did the entire job alone. First it dozed dirt from around the base of each tree to cut surface roots. Then, with dozer blade raised near maximum 54 inches, Tournatractor pushed trees over. Complete uprooting task averaged 3 to 4 minutes per tree. Said the tractor operator, Elmer Schwarz, "This rig did a wonderful job in tree removing!" Its instant-shift transmission kept maximum "push" on the tree at all times . . . quick-shift into high-speed reverse let unit move away quickly from falling trees.



Speeds clean-up, push-loading, & pulling

After uprooting trees, Tournatractor pushed them 300 ft. for disposal in a field. Push took 2½ minutes; return took about 40 seconds. "Tournatractor did one job fast and was ready immediately for another," comments operator Schwarz. Other assignments included push-loading scrapers, pulling rollers, and handling other important tractor work.

On 40 ft. push, dozes 115 yds. hourly

When trees were removed, Tournatractor dozed in material from 50 ft. on both sides of the road to raise grade 2 ft. and to cut down banks prior to major scraper dirtmoving. Loads averaged 2½ to 3 pay yds. per push. On 80 ft. cycles, push, spread, and return took 1.3 minutes. Big low-pressure tires helped compact material as it was spread on the run.

Travels job-to-job at 19 mph

Crawford County Hwy. Dept. owners, report Tournatractor goes virtually anywhere at speeds to 19 mph. Emergency jobs 5 miles away can be reached in about 20 minutes. As Job Supt. Leonard Hassett summarizes, "One of Tournatractor's advantages is that it can move quickly and efficiently." Let us demonstrate this speed advantage on your job. Write for details.

Tournatractor—Trademark Reg. U.S. Pat. Off. T-823-P-b

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company

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For your sample copies of CONSTRUCTION DAILY and information on how this construction market letter can help your business, write to Circulation Manager, CONSTRUCTION DAILY, 330 W. 42 St., New York 36, N. Y.

Smith & Johnson, 1799 Kentucky Ave., Indianapolis, Ind. CA $119,068. bridge over Mississinewa River at Highland, MARION, IND. Grant Co., Marion, Ind. Pierce Gruber & Bean, Hume Mansur Bldg., Indianapolis, Ind., engrs. Awarded Dec. 19. CD 2/10/55.

† Gaskill & Walton Constr. Co., Crete, Ill. LB $68,880. water treatment plant, bldg. 18, Veterans Admin. Hospital, DWIGHT, ILL.; Veterans Admin., Munitions Bldg., Wash., D. C. Bids Dec. 20. CD 11/2.

WISCONSIN — State Hy. Comn., State Office Bldg., Madison,

Wis.—O'Keefe Constr. Co., 618 N. Superior St., DePere, Wis. CA $550,080. grade, ballast, base 7.413 mi. U. S. Hy. 45, Contr. 2, Mattek's Corners-North County Line Rd., Proj. F09-2 (27). Langlade Co.;

Wis.—Proksch Constr. Co., Iron River, Mich. CA $166,928. grade, ballast and base 4.853 mi. C. T. Hy. "W", Contr. 1, C. T. H. "J"-Birch Lake Rd., Proj. S 0719 (2), Vilas Co. CD 12/27, under LB.

BUILDINGS—LB & CA

Elmer Hume, Inc., 855 Cleveland Ave., Amherst, O., LB $374,788 (4 bidders) general constr. LIBRARY, 6th and Reid Sts., LORAIN, O. Lorain Public Library, Marian M. King, librarian, Lorain, O. Bids Dec. 16. CD 11/23.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

Minn., Robbinsdale—BA 1/9—City, E. A. Janeisch, clk., furnish, erect 500,000 water tower, $125,000, R. Frederickson, city engr. CD 12/13/54.

† Mont., Glasgow—HEATING PLANT—BA 1/10—U. S. Eng., City-County Airport, Walla Walla, Wash., central high-temp. hot-water heating plant and distr. sys., Glasgow Air Force Base, Inv. 56-14. Extended date. CD 11/30.

TEXAS—BA 1/10—State Hy Comn., Austin, Williamson Co.—0.792 mi. San Gabriel River bridge, grading, structures, flexible base, b. conc. pavement Hy. ST 5 and 29. Proj. F 10 (10), etc. $140,000.

TEXAS—BA 1/10—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,

Tarrant Co.—Contr. D-FW 44, continuous rolled beam and concrete girder bridges at Cedar St., Riverside Dr., Sycamore Creek, Beach St., Oakland Blvd. and Boaz Creek. Turnpike Engineers, 205 W. Main St., Arlington, Engrs. CD 3/28.

TEXAS—OKLAHOMA—BA 1/10—State Hy Comn., Austin, Tex. and Okla. State Hy. Comn., Oklahoma City,

Clay Co. Tex., Jefferson Co., Okla.—const. Red River erosion control near the Red River Bridge between Byers, Tex. and Waurika, Okla. Proj. MC 282-1-3, etc. $100,000.

TEXAS—BA 1/10—State Hy. Comn., Austin,

Bosque, Bell, Hamilton, McLennan, Falls, Hill Coryell and Limestone Counties—seal coat on Hy. US 281, SH 22, 36, FM 436, etc. Proj. C 121-1-9, etc. $200,000.

Coryell and Hamilton Counties—grading, structures, base, surf. 9.212 mi. H. FM 1241, Proj. S 2085 (1), etc. $85,000.

Dallas Co.—grading, structures, conc. pavement 5.211 mi Hy. US 77. Proj. IN 22 (8). $220,000.

Duval Co.—reconstr. grading, structures, flexible base, two course surf. tr. 3.973 mi. Hy. SH 359. Proj. C 86-5-8. $60,000.

Garza and Lynn Counties—grading, structures, flexible base, asph. surf. tr. 15.396 mi. Hy. US 84 and FM 2282 and 2106. est. $190,000.

Gillespie Co.—grading, structures, flexible base, b. conc. pavement 8.359 mi. Hy. US 290. Proj. F 46 (8), etc. $300,000.

Hunt Co.—grading, structures 15.2 mi. Hy. US 67, Proj. IN 800 (10). est. $400,000. CD 12/15, under LB.

Smith Co.—b. conc. pavement 14.831 mi. Hy. US 69 and SH 64. Proj. C 190-5-16, etc. $75,000.

Wilbarger Co.—grading, structures, foundation course, b. conc. pavement and conc. pavement 2.612 mi. Hy. US 287. Proj. F 451 (4). $200,000.

TEXAS—BA 1/11—State Hy. Comn., Austin,

Montgomery Co.—1.681 mi. San Jacinto River bridges and approach, grading, structures, flexible base, b. conc. pavement Hy. US 75, Proj. IN 370 (11). Est. $400,000. CD 12/15, under LB.

TEXAS—BA 1/11—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,

Dallas Co.—Contr. D-FW 45, continuous rolled beam and plate girder bridges at Hale Cement Spur RR, Westmoreland Rd., Edgefield Ave. and Sylvan Ave. Turnpike Engineers, 205 W. Main St., Arlington, engrs. CD 3/28.

TEXAS—BA 1/11—State Hy. Comn., Austin,

Denton Co.—grading, structures, roadbed tr. 3.92 mi. Hy. US Proj. FI 117 (10). $200,000.

El Paso, Jeff Davis, Culverson, Presidio and Hudspeth Counties—seal coat 172.7 mi. Hy. US 90, 67, 62, 180, etc. Proj. C 2-14-5. $200,000.

Harris Co.—highway illumination sys. 0.564 mi. Hy. SH 146, Proj. MC 389-12-12, less $60,000.

Jasper Co.—grading, structures, flexible base, hot mix b. conc. pavement 10.748 mi. Hy. US 190 and ST 63. Proj. F 930 (8). $550,000.

Jefferson Co.—grading, structures, conc. pavement 2.473 mi. Hy. US 90. Proj. UI 66 (12). $350,000.

How L.G. Arnold, Inc.

licks spongy haul road, 20% grades

C Tournapull loads clay and shale for 3000-ft. haul to roadway seen in distance. Occasional slabs of shale made loading difficult. Avg. load time was 65 sec. over 90-100 ft.

Spongy, soft condition of roadway is shown. On the 12½-mile job, 9000 ft. of drainage pipe and 7 bridge structures will be installed.

Loading sand for sand lift, "C's" "float" over soft footing with big 24:00 x 25 tires.

On regrading 12½ miles of Wisconsin Highway 95, from Blair to Hixton, L. G. Arnold, Inc., of Eau Claire, Wis., found Tournapulls a big help in licking a tough hauling problem. Their job was to widen grade from 20′ with 4′ shoulders to 22′ with 8′ shoulders. It also involved raising the road 2 to 4 ft., including a 15″ sand lift. The other material handled was clay and shale mixed and silty sand.

Three miles of this 612,000-yd. job lay in a swampy area where bubbling springs made road soft and spongy. 3 weeks of rain, after starting the job, made spongy conditions worse.

Equipment used on this project included 7 new C Tournapulls, 3 Super "C's", 6 crawler-scraper units, 10 crawlers for pushing and dozing, 1 rooter, and 2 motor patrols.

7 loads per hour on 6000′ cycle

On a long haul from borrow pit, over a typical 6000′ cycle, each of six Tournapulls on this operation averaged 8.3 min. per trip, 7 trips per hr. Contractor estimated the 6 "C's" averaged 20,000 yds. in a 50 hr. wk. The soft haul road had a 20% grade from highway to borrow pit. Rigs traveled in 2nd gear most of haul distance.

3-mile one-way haul to build 15″ sand lift

Later, the Tournapulls were used to haul the 15″ sand lift on hauls ranging up to 3 miles one way. On the long operation, rolling resistance on the sandy, clayed-loam road was as high as 250 to 300 lbs. per ton. "C's" were equipped with sideboards and 24:00 x 25 tires. These large tires, with 45 lbs. pressure, made it possible for rigs to go through spongy sections in the new grade, trip after trip, without damage to the soft sub-grade.

This time study was taken on the sand lift operation while the 7 "C's" worked a 5.2-mile cycle:

Time in Borrow Pit (2000′ from haul road)	6.7 min.
Travel 10,000 ft. @ 16.2 mph avg.	7.0 min.
Travel 2,000 ft. @ 8.0 mph avg.	2.9 min.
Return 11,000 ft. @ 16.4 mph avg.	7.7 min.
Return 1,000 ft. @ 8.0 mph avg.	1.4 min.
Total cycle time	25.7 min.

Each machine averaged 14 yds. per load. On this 5.2-mi. swing the 7 "C's" totaled 1900 yds. per 10-hr. day.

"Sure-footed in wet going"

Performance of the C Tournapulls was praised highly by the men on the job. Said Phil Dudenhoefer, Grade Superintendent, "I like the sure-footedness of the C Tournapulls in wet and slippery going." On the grading operation, Ralph Ring, Master Mechanic, said, "Tournapulls unloaded by themselves while other units had to be pushed to unload."

Commenting on the sand lift operation, Norman Hulett, Superintendent, had this to say: "Tournapull is the most sure-footed piece of equipment I've ever seen on rubber. I never figured I'd see rubber tires go where these can go."

You, too, need speed and versatility to meet your dirtmoving problems, on long hauls, short hauls, in bad weather, spongy footing, and other adverse conditions. Check Tournapulls for the answer. Write or phone your LeTourneau-Westinghouse Distributor for a demonstration on your job. He will be glad to show you how to get lowest-net-cost-per-yard with Tournapulls.

Tournapull—Trademark Reg. U.S. Pat. Off. P-905-H-b

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Kaufman Co.—grading, structures, flexible base, b. conc. pavement 4.502 mi. Hy. US 175 and SH 34 and 243. Proj. F 136 (12), etc. $250,000.

Ochiltree and Lipscomb Counties—grading, structures, base, surf. 22.148 mi. Hy. FM 377 and 1265. Proj. S 967 (2), etc. $250,000.

Wichita Co.—grading, structures, base, surf. 6.12 mi. Hy. FM 1206 and 2226. Proj. S 2004 (1), etc. less $60,000.

Wise Co.—addnl. base, two course surf. tr. and b. conc. pavement 10.758 mi. Hy. FM 51. Proj. S 874 (7). $75,000.

▲ OKLAHOMA—BA 1/24—Oklahoma turnpike Auth., 321 N. E. 24 St., Oklahoma City, Zone 5,

Craig Co.—asph. pavement, etc. 4.887 mi. Constr. 159. at Vinita. $500,000.

Ottawa Co.—asph. pavement, etc. 5.118 mi. Contr. 161 at Fairland. $500,000. asph. pavement, etc. 5.012 mi. Contr. 160 at Afton, $500,000. asph. pavement, etc. 4.391 mi. Contr. 162 at Miami, $500,000.

Rogers Co.—asph. pavement, etc. 4.838 mi. Contr. 165 at Chelsea. $500,000. asph. pavement, etc. 5.226 mi. Contr. 164 at Claremore. $500,000. asph. pavement etc. 4.887 mi. Contr. 163 at Catoosa. $500,000. DeLeuw Cather & Co., 321 N. E. 24 St., Oklahoma City, Zone 5, engrs. CD 3/23/54.

HEAVY CONSTRUCTION—LB & CA

† MINNESOTA—Forest Service, Dpt. Agriculture, 623 N. Second St., Milwaukee, Wis.,

Ashbach Constr. Co., 1910 W. County Road C, St. Paul, Minn. LB $140,215. (3 bidders) grav. surf. 4.23 mi. Ely Buyck Forest Rd. No. 197, Sec. D, St. Louis Co., Bids Dec. 19. CD 12/8.

Douglas Constr. Co., 510 E. 15 St., Topeka, Kan. CA $103,473. sewers, lift station, sewage plant ALTOONA, IOWA. City, Altoona, Iowa. Lechner Engr. Co., Ames, Iowa, engr. Bids Dec. 2.

▲† S. J. Groves & Sons Co., 500 Wesley Temple Bldg., Minneapolis, Minn., LB $4,486,398, asphaltic type surf. LB $4,961,277, concrete constr. (6 bidders). runway for Air Force Base, GRAND FORKS, N. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Dec. 20. CD 4/14.

† O. J. Eickhof & Sons, Inc., Crookston, Minn. and Lovering Constr. Co., 59 W. Kellogg Blvd., St. Paul, Minn. LB $770,401. Schedule 1, $771,022 1A, infirmary Minot Air Force Base, Inv. 25-066-56-18, MINOT, N. D. U. S. Eng. 1709 Jackson St., Omaha, Neb. Bids Dec. 21. CD 11/10.

▲† J. W. Bateson, Gibraltar Life Bldg., Dallas, Tex., LB $5,461,750. family housing, Lincoln Air Force Base, Inv. 25-066-56-6, LINCOLN, NEB. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids Dec. 22. CD 12/1.

▲ OKLAHOMA—Oklahoma Turnpike Auth., 321 N.E. 24 St., Oklahoma City, Zone 5,

OTA—Anchor Constr. Co. 811 Midstates Bldg., Tulsa, Okla. CA $474,186. est. $460,610, asph. pavement, etc. 3.055 mi. Contr. 157 at Claremore, Rogers Co.;

OTA—Peter Kiewit & Sons Co., 1024 Omaha Natl. Bank Bldg., Omaha, Neb., CA $797,125. est. $737,991, asph. pavement, etc. 5.361 mi. Contr. 152 at Miami, Ottawa Co.;

OTA—Metropolitan Paving Co., 300 S. Indian St., Oklahoma City, Okla., CA $867,776. est. $792,943. asph. pavement, etc. 5.681 mi. 4-lane, Contr. 158, at Big Cabin, Mayes and Rogers Counties.

OTA—Tecon Paving Co., 1201 Main St., Dallas; Tex., CA $710,145. est. $654,696, asph. pavement, etc. 4.777 mi. for Contr. 154 at Fairland, Ottawa Co. Grand total $2,849,232. Bids Dec. 20. Awarded Dec. 22. CD 12/19.

TEXAS—State Hy. Comn., Austin,
cancelled bids to have been opened Jan. 11, grading, structures flexible base, and b. conc. pavement 0.733 mi. Hy. SH 16, Proj. C 291-2-10, Kerr Co. CD 12/16.

▲† J. M. Dellinger Inc., Box 4227, Corpus Christi, Tex., CA $1,843,000. airfield pavement, Naval Auxiliary Landing Field, NOY 89004. Spec. 47895. ALICE-ORANGE GROVE, TEX. Officer in Charge of Constr. Naval Air Advanced Training Command, Naval Air Station, Corpus Christi, Tex. Bids Nov. 15. CD 11/21, under LB.

▲† McKenzie Constr. Co., Box 806, San Antonio, Tex., CA $1,496,000. runway, taxiway paving, Chase Field, Naval Auxiliary Air Station, NOY 86371. Spec. 45583. BEEVILLE, TEX. Officer in Charge of Constr., Administration Bldg. No. 1, Naval Air Station, Corpus Christi, Tex. Bids Dec. 1. CD 12/6, under LB.

▲† J. W. Bateson, Gibralter Life Bldg., Dallas, Tex. LB $1,191,171. Schedule 1, $934,157. Schedule 1A, airmen's dormitories, Lowry Air Force Base, Inv. 23-066-56-37, DENVER, COLO. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Dec. 21. CD 12/2.

BUILDINGS—LB & CA

▲ Cunningham Bros. Inc., 359 E. Grand Ave., Beloit, Wis., CA Est. $5,400,000. POWER PLANT expans., incl. 100x50x142 ft. bldg. for generator, boiler, coal pulverizers, switching station, LANSING, IOWA. Interstate Power Co., 1000 Main St., Dubuque, Iowa.

Hathman Constr. Co., Hathman Bldg., Columbia, Mo. CA $471,600. Est. $500,000. Jefferson Junior High SCHOOL addn., COLUMBIA, MO. Bd. Educ., Neil C. Aslin, supt. schools, Columbia, Mo. Bids Dec. 7. CD 11/30.

Five to 6 passes by the 1¾-yd. shovel fill Rear-Dump to heaped capacity. In making change-over from scraper to rear-dump, same tires, wheels, brakes, and controls are used.

Alabama contractor shows how to get "double value" from each dollar of equipment investment

"Interchangeability" has a powerful meaning to Clyde O. Mitchell, Birmingham. It's the way he assures himself "double value" from his versatile C Tournapulls.

For dirtmoving, Mitchell hitches 14-yd. scrapers behind his 2-wheel "C" prime-movers. Whenever he encounters shovel rock, he switches scraper bodies for rear-dumps to handle this problem. The ability to switch to rear-dumps eliminates added ownership or rental expense of trucks, reduces maintenance cost as well as equipment and parts inventory, and permits operation under weather and haul road conditions that would shut down truck operation.

Double duty means added profits

Mitchell has made extra profits twice so far on important jobs because of this quick-change feature of his C Tournapulls.

First double-duty assignment was a state highway improvement job at Decatur, Alabama. On this job, the scrapers handled 800,000 yds. of dirt, while Rear-Dumps moved 100,000 yds. of rock.

Recently he relocated and straightened 4.1 miles of State Highway 431 between Attalla and Boaz. Here, of the 486,000 cu. yds. of material to be moved, about 16% was rock, 75% chert, and 9% clay. The dirtmoving was handled by two C Tournapulls with Scraper, three 18-yd. tractor-drawn FP scrapers, and three self-propelled scrapers of another make. The Tournapulls were then equipped with Rear-Dumps to haul rock . . . about 78,000 yards.

4200′ cycle every 6 minutes

Time studies show the Tournapull Rear-Dumps are real producers. With wide, easily entered bodies, they were loaded with 10 pay yards by a 1¾-yd. Lorain shovel in an average of 1 minute, 40 seconds. Working 4200′ cycles, each round-trip took only 6 minutes. Haul and return speeds averaged 12 mph. Hourly output for the 2 machines was 180 pay yards per 55-minute hour.

More speed on long hauls

This kind of production and Tournapull interchangeability highly pleases the owners. Says Supt. G. M. Wakefield: "I like the C Tournapull prime-mover. It's got a good scraper and rear-dump. It will stand up against any dirtmover."

Adds operator C. L. Moore: "The Tournapull can turn everywhere, and it's got more speed on long hauls. It's simple to understand . . . easier to operate than other rigs."

Figure out for yourself on the basis of cost alone the extra value of Tournapull interchangeability. An additional haul unit costs about 25% of the total initial price of prime-mover and original haul-unit combination. Interchangeable haul-units can be purchased at any time.

Find out how this double-duty equipment can give *you* double earning power for every dollar of investment. For more facts and owner-verified case histories, write or phone today.

Dumping on the run, Rear-Dump builds subgrade in cut where rock has been removed. Average dumping time was about 20 seconds. Electric controls respond instantly for steering and controlled dumping.

Tournapull—Trademark Reg. U.S. Pat. Off. R-801-H-b

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

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FAR WEST

HEAVY CONSTRUCTION—BA

CALIFORNIA—BA 1/18—State Div. Hys., 1120 N St., Sacramento,

Alameda Co.—repairing portions of rein.-con. beams, piles and caps of the San Mateo-Hayward Bridge. $616,000.

CALIFORNIA—BA 1/18—State Div. Hys., 1120 N St., Sacramento,

Mariposa Co.—const. 28 ft. roadbed, 4 mi. of Sign Rte. 140 between 4.2 mi. and 0.1 mi. west of Mariposa. $325,000.

Napa Co.—const. 3.8 mi. highway on Sign Rtes. 29 and 128 between 4 mi. north of St. Helena and Calistog. $545,000.

San Joaquin—const. two 37 ft. roadbeds, separated by 36 ft. median to provide 4-lane divided highway on U. S. 99 for 2.5 mi.; two separated and parallel steel beam structures to provide 28 ft. clear roadway on Turner Station overhead and frontage road and ramps, $1,400,000. CD 10/31.

CALIFORNIA—BA 1/19—State Div. Hys., 120 S. Spring St., Los Angeles,

Riverside Co.—const. 2.7 mi. U. S. 60-70-99 between 0.8 mi. north of Indio Overhead and Indio, grading addnl. 37 ft. roadbed with variable median to provide 4-lane divided ... and constr. Coachella storm drain and Indio ... ead. $820,000. const. interchange and connecting ramps U. S. 60-70-99 approx. 3 mi. north of Palm Springs at Indian Ave. $226,000. CD 10/31.

Calif., Redlands—SCHOOL addn.—BA 1/9—Redlands High School Dist., Redlands, 30,000 sq. ft. Redlands high school addn. $500,000. Plans deposit $25. Extended date. Harold Gimeno, 1416½ S. Main St., Santa Ana, archt.

Wash., Bellingham—HIGH SCHOOL—BA 1/20—School Dist. 501, Bellingham, junior high school. $1,000,000. Plans deposit $25 general const. G. W. Bentley, 1130 State St., archt. CD 11/9/54.

HEAVY CONSTRUCTION—LB & CA

▲ **S. Morgan Smith Co.**, 500 Lincoln St., York, Pa. CA Est. $3,000,000. four Francis-type turbines for Brownlee Hydro-Electric Development on the Snake River Hells Canyon Project. IDAHO-OREGON. Idaho Power Co., 1220 Idaho St., Boise, Idaho. CD 8/8.

UTAH—State Road Comm., Salt Lake City,

Peter Kiewit Sons Co., Idaho Falls, Idaho, CA $1,927,142, est. $2,043,137, 3.492 mi. 3 in. plant mix bit. surf., 4-lane highway in Parley's Canyon, Proj. FI-IN-97 (19) and S-342 (1), Salt Lake Co. Bids Nov. 22. CD 11/28, under LB.

WASHINGTON—State Hy. Comm., Olympia,

Wash.—**Grant Constr. Co.**, Coeur d'Alene, Idaho. LB $80,658. grade, surf. 23.221 mi. feeder roads in block 19, Franklin Co.;

Wash.—**C. E. Oneal**, Ellensburg, Wash. LB $370,301. grade, light bit. surf. 4.557 mi., Primary State Hy. 7 Blue Lake to Dry Falls, F.A.P. No. F 031-1 (3), Grant Co. Bids Dec. 20. CD 12/7.

OREGON—State Hy. Comm., Highway Bldg., Salem,

Ore.—**Tom Lillebo**, Reedsport, Ore., CA $899,964 (7 bidders) 836 ft. grade separation structures, FAP US-31 (5), Klamath Co.;

Ore.—**Workman & Wilson**, Rte. 1, Box 30, Canby, Ore., CA $124,720 (4 bidders) 382 ft. bridge on Miami Valley Rd., FAP S-177 (1), Tillamook Co.;

Ore.—**George E. Berry**, 2640 S.W. Cedar Hills Blvd., Beaverton, Ore., CA $101,500 (10 bidders) 46 ft. undercrossing, 1.15 mi. roadbed, Hermiston Hy. FAP S-86 (1), Umatilla Co.;

Ore.—**Birkemeier Constr. Co.**, 14511 S.E. River Rd., Milwaukie, Ore., CA $108,080 (12 bidders) 110 ft. and 924 ft. grade separation, structures, Three Mile Lane Hy. FAP S-96 (3), Yamhill Co. Grand total $1,234,264. Bids Dec. 20. CD 12/8.

OREGON—State Hy. Comm., Highway Bldg., Salem,

Pettijohn Engrg. Co., 4145 N.E. Cully Blvd., Portland, Ore., CA $130,170 (4 bidders) 260 ft. bridge, Nehalem Hy. FAP S-213 (19), Columbia Co. Bids Dec. 19, awarded Dec. 19. CD 12/8.

OREGON—State Hy. Comm., Highway Bldg., Salem,

Ore.—**Allum Bros.**, Box 253, Eugene, Ore., CA $349,502 (12 bidders) grading, oiling 3.65 mi. McKenzie Hy. FAP F-117 (20), Deschutes Co.;

Ore.—**Warren Northwest, Inc.**, Box 5072, Portland, Ore. CA $364,241 (10 bidders) grading, paving, shoulder oiling 7.31 mi. Willamette Hy. FAP F-184 (3), Klamath Co. Bids Dec. 20. CD 12/8.

OREGON—State Hy. Comm., Highway Bldg., Salem,

Ore.—**Gibbons & Reed**, Box 4989, Portland, Ore., CA $616,641 (12 bidders) grading 0.91 mi., tunnel 0.27 mi., Mapleton-Richardson Rd. FAP S-234 (7), Lane Co.;

Ore.—**Roy L. Houck & Son**, 1585 N. 20 St., Salem, Ore., CA $277,333 (13 bidders) grading, paving, shoulder oiling 4.84 mi., Pendelton-John Day Hy., FAP F-155 (4), Umatilla Co. Bids Dec. 19, awarded Dec. 19. CD 12/8.

CALIFORNIA—State Div. Hys., 1120 N St., Sacramento,

O. B. Pierson, Inc., 3576 Cerritos St., Los Alamitos, Calif., CA $552,480, grading, paving 0.5 mi. U. S. 99 at Garces Circle and constr. plate girder bridge at Bakersfield, Kern Co. Bids Dec. 7, awarded Dec. 20. CD 12/14, under LB.

BUILDINGS—LB & CA

E. F. Wopschall Co., 35 N. Arroyo Parkway, Pasadena, Calif., CA $512,438, est. $500,000. (7 bidders) Barclay SCHOOL, AZUSA, CALIF. Gladstone School Dist., 18022 E. Gladstone St., Azusa, Calif. Bids Dec. 15. CD 12/7.

▲† **M. H. Golden Constr. Co.**, 3488 Noell St., San Diego, Calif. LB $1,258,000 (five bidders) enlisted men's barracks 2nd increment at Naval Amphibious Base, NOY 90803, Spec. 49480, CORONADO, CALIF. Dpt. Navy, Eleventh Naval Dist., P. Wks. Office, San Diego, Calif. Bids Dec. 20. CD 12/6.

Crown Const. Co., 5059 W. Pico Blvd., Los Angeles, Calif. LB $617,000. frame, stucco Sierra SCHOOL, LANCASTER, CALIF., Lancaster School Dist., 44721 N. Date Ave., Lancaster, Calif. H. L. Gogerty, 3123 W. 8th St., Los Angeles, Calif., archt. Bids Dec. 16.

C. W. Driver, Inc., 2619 Temple St., Los Angeles, Calif. LB $868,431, est. $700,000 (6 bidders) HOSPITAL addn., TORRANCE, CALIF. Torrance Memorial Hospital, 1425 Engracia Ave., Torrance, Calif. Bids Dec. 14. CD 12/7.

CANADA

HEAVY CONSTRUCTION—BA

Ont., Toronto—BA 1/30—Municipality of Metropolitan Toronto, 67 Adelaide St. E., four 100 ft. diameter digestion tanks and control bldgs., gas control sys. incl. 60 ft. diameter gas holder and gas control bldg. and appurtenances, expans. of Ashbridge's Bay Sewage Treatment Plant. Plans deposit $50. Gore & Storrie, 1130 Bay St., Toronto, Ont. and Metcalf & Eddy, Statler Bldg., Boston 16, Mass., engrs. CD 9/3/54.

HEAVY CONSTRUCTION—LB & CA

BRITISH COLUMBIA—B. C. Govt., Parliament Bldgs., Victoria,

B. C.—**Storms Contg. (Pacific) Ltd.**, 342 W. Pender St., Vancouver, B. C. LB $130,701, constr. 2.89 mi. of Trans-Canada Hy. Cherry Creek section.

B. C.—**Premier Constr. Co. Ltd.**, 1446 Alberni St., Vancouver, B. C. LB $233,905. reconstr. 6.05 mi. Cowichan Bay Rd.-Koksilah section of Trans-Canada Hy. Vancouver Island. Bids Dec. 15.

▲ **Majestic Contractors, Ltd.**, 408 Royal Trust Bldg., Edmonton, Alta., CA est. $5,000,000. 67 mi. 24 in. line and 2 mi. 26 in. line of oil pipe line from Carroll to Somerset and to U. S. border. MANITOBA, Interprovincial Pipe Line Co. Ltd., 50 King St. W., Toronto, Ont. Awarded Dec. 16.

▲ **Dobson Const. Co.**, Oakland Ave., Moncton, Ont. CA $1,000,000. 110 housing units (96 bldgs.) at RCAF Station, MONCTON, N. B. Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S. Bids Nov. 29. CD 11/14.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto,

Peel Const. Co. Ltd., 75 Main St. W., Brampton, Ont. CA $679,365. granular base, hot mix paving 6.6 mi. Hy. 401, incl. two cloverleafs, from 0.35 mi. west of Hy. 73 to 0.69 mi. west of Victoria Rd. Contr. 55-232. London. Bids Dec. 7. Awarded Dec. 19. CD 12/23, under LB.

S. McNalley & Sons, Ltd., 2200 King St. E., Hamilton, Ont., LB $846,473. trunk storm sewer along Joicey Blvd. and Wilson Ave., approx. 6,023 lin. ft. concrete tunnel ranging from 69 to 84 in. diameter, approx. 2,606 ft. concrete sewer pipe 30 to 84 in. diameter, etc. TORONTO, ONT. North York Twp., 5145 Yonge St., Willowdale, Ont. Bids Dec. 16. CD 12/5.

BUILDINGS—LB & CA

▲ **Dr. J. Kuhl**, 17 Fairleigh Crescent, Toronto, Ont. Owner Builds, $1,200,000. 13 story 136 suite APARTMENT, St. Clair and Avenue Rd., TORONTO, ONT. CD 9/1.

▲ **Louis Donolo (Ontario), Ltd.**, 2790 Dufferin St., Toronto, Ont., CA Approx. $1,250,000. (10 bidders) first stage of SHOPPING CENTER, 3 bldgs., 100x185 ft., 100x215 ft., 120x305 ft., each 1 story, concrete fdns., concrete slabs, steel frame and roofdeck, containing 35 stores, TORONTO, ONT. Cloverdale Shopping Center, Ltd., c/o M. W. Roth, archt., 55 Boulevard Dr., Toronto, Ont. Bids Dec. 5. Awarded Dec. 16. CD 11/29.

PROPOSED PROJECTS

WATER SUPPLY

Minn., Red Wing—City, Water & Light Comm., A. Borgen, secy, water imprvs., $115,000, R. J. Ellison, 2055 Bayard Ave., St. Paul, consult. engr. J. Enns, City engr. To go ahead in 1956. CD 12/14.

▲ **Mo., Kansas City**—City, City Hall, $25,000,000 bond election Jan. 24, water supply. CD 11/12/54.

B. C., Burnaby—Burnaby Municipality, Municipal Hall, 30 mi. 4 to 12 in. steel pipe water mains, $820,000.

SEWERS, WASTE DISPOSAL

N. Y., Old Bethpage—Town Bd., Oyster Bay, Town Hall, Oyster Bay, incinerator addns., $220,000, William Raisch, 53 Park Ave., Garden City, consult. engrs.

BRIDGES

▲† **WASHINGTON**—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland, Ore., bridge over Nisqually River on highway to Paradise Inn in Rainier National Park, replacing washed-out structure. $1,250,000. To begin within three years.

AIRPORTS

▲† **Wash., Spokane**—HOUSING—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, housing for personnel of Nike batteries scheduled to move in Fairchild Air Force Base area. $3,375,000.

PUBLIC BUILDINGS

Iowa, Williamsburg—SCHOOL—Bd. Educ., plans by Smith-Voorhees-Jensen & Siletto, 206 Davidson Bldg., Des Moines, junior-senior high school $400,000. CD 12/23.

Mich., Kalamazoo—LIBRARY—State, A. N. Langius, dir., State Bldg. Dpt., Lewis Cass Bldg., Lansing, plans by Ralph R. Calder, 1212 Kales Bldg., Detroit, Zone 26, library Western Michigan College of Education, $550,000. CD 1/28/55.

Mich., Kalamazoo—KITCHEN BLDG.—State, A. N. Langius, dir., State Bldg. Dpt., Lewis Cass Bldg., Lansing, plans by Lewis C. Kingscott & Assoc., 511 Monroe St., kitchen bldg., Kalamazoo State Hospital, $365,000. CD 2/7/55.

▲ **Mich., St. Clair Shores**—SCHOOL—St. Clair Shores Lakeview School Dist., voted $1,500,000 bonds Dec. 19, schools. CD 12/12.

▲ **Minn., Bloomington**—SCHOOL—Bd. Educ., A. Moir, clk., voted $3,800,000 bonds Dec. 19, high school between 88, 90 Sts., Queens and Thomas Aves., to go ahead in 1956. CD 11/17.

Minn., Fridley—GYMNASIUM AUDITORIUM LIBRARY—Village, E. Madsen, mgr., voted $375,000 bonds Dec. 20, gymnasium-auditorium-library on site of village high school, Magney-Tusler & Setter, 303 Roanoke Bldg., Minneapolis, archts. To go ahead in 1956. CD 12/21.

COMMERCIAL BUILDINGS

▲ **Md., Hillandale**—SHOPPING CENTER—Benjamin Nusbaum & Morris Weinstein, 6814 Red Top Rd., Takoma Park, plans by Corning & Moore, 1726 M St. N.W., Wash., D. C., 20 store shopping center in 6800 block of New Hampshire Ave., $1,750,000. Constr. in the Spring of 1956.

▲ **Md., Wheaton**—SHOPPING CENTER—Metropolitan Homes, Inc., 1907 Henry Rd., Rockville, plans by Fon Montgomery, 8641 Colesville Rd., Silver Spring, Colonial Shopping Center at Viers Mill Rd. and Randolph Rd., $1,400,000. To start in March, 1956.

▲ **N. Y., New York**—OFFICE—U. S. Trust Co. and Atlantic Mutual Insurance Co., 45-49 Wall St., Zone 5, 26 story air-conditioned office at southwest corner of Wall St. and William St., $2,000,000.

N. Y., New York—APARTMENT—Yorkroad Corp., 349 E. 149 St., Zone 51, plans by Gelbman & Glick, 400 E. Fordham Rd., Zone 58, apartment at 1354-1362 York Ave., $650,000.

▲ **Okla., Burneyville**—LODGE, GUEST HOUSES, etc.—W. Franklin Turner, Burneyville, lodge, guest houses and reception area, $750,000; 18-hole golf course, $275,000; rein.-con. swimming pool, $85,000; grounds development, grading, drainage, general earthwork, 600-acre tract, $100,000; water supply wells, (for golf courses), $100,000.

▲ **Tex., Houston**—SHOPPING CENTER—Frank W. Sharp, 6302 Bellaire Blvd., plans by MacKie & Kamrath, 2713 Ferndale St., shopping center for "Sharpstown", $2,500,000.

▲ **Ont., Niagara Falls**—HOTEL ADDN.—Sheraton, Ltd., 1455 Peel St., Montreal, Que., 100-room hotel addn. to Foxhead Hotel. $1,000,000.

INDUSTRIAL BUILDINGS

▲ **Ariz., Phoenix**—RESEARCH CENTER—Sperry Rand Corp., Lake Success, Great Neck, advanced flight research center and plant to mfg. aviation electronic equip. at Sky Harbor Airport. To start in 1956. Est. $10,000,000.

Ind., Indianapolis—PLANT—Howard Sams Co., 3334 Southerland Ave., mfg. plant addn., $100,000.

▲ **Ont., Clarkson**—PLANT—St. Lawrence Cement Co., 80 King St. W., Toronto, expans. to double capacity of cement plant, $12,000,000. General Engineering Co. Ltd., 100 Adelaide St. W., Toronto, consult. engr. CD 7/1.

UNCLASSIFIED

Minn., Winona—SWIMMING POOL—City, L. Pfeiffer, clk., municipal swimming pool, $200,000. To go ahead in 1956.

N. Y., Brooklyn—ATHLETIC FIELD—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, modernization of Midwood High School athletic field at Ave. K and East 17 St., $100,000.

Versatile "D" Tournapull

has a place on EVERY dirtmoving job

Every "big" dirtmoving job breaks down into work sections . . . some suitable for "big" equipment . . . some suitable for "small" equipment.

The improved D Tournapull fills the need for a fast, flexible, self-propelled scraper which works economically on both big and small-yardage assignments and on both long and short hauls.

Its capacity is 5.9 cubic yards, struck, or 7 cubic yards, heaped. It is large enough and fast enough for profitable use in pusher fleets . . . yet small enough for one-man self-loading. It cuts delays and expense for small yardage sections, clean-up, access roads, shoulders, drainage and other headache jobs that normally eat into your profits.

Not only is the "D" highly versatile, but it runs from one location to the next at speeds to 28 mph.

It travels anywhere . . . over highways or cross-country, over curbs, railroad tracks, bridges. It works fast . . . moves more earth in less time than big crawler tractor-scraper combinations costing thousands of dollars more.

Pictures show some of typical applications. Look over your current dirtmoving projects and you'll find many of these assignments . . . and others . . . where "D" can speed completion and cut your costs.

If you want more information on the D Tournapull, or if you would like to see a demonstration on your job, call your LeTourneau-Westinghouse Distributor. He is always at your service.

Tournapull—Trademark Reg. U.S. Pat. Off. DP-885-G-b

Backfills around culverts

Backfills around buildings

Shapes backslopes

Fine-grades before paving

Blades shoulders

Cuts drainage ditches

Spreads gravel

Handles clean-up

Spreads top-dressing

Fills hoppers

Does production dirtmoving

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

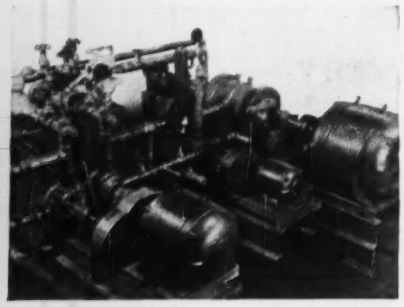
A Subsidiary of Westinghouse Air Brake Company

4 Steps to Better Paving

with EMULSIFIED ASPHALT

CONTINUOUS RESEARCH and "pilot studies" are conducted in the central laboratory at Lafayette. All McConnaughay-Approved Specifications run the gauntlet of at least two years' laboratory testing and development, followed by five years of field tests.

QUALITY-CONTROLLED PRODUCTION of emulsions through mills designed to handle up to 100,000 gallons per day (Model B-14-18 illustrated). McConnaughay mills have outstanding records of dependability extending over 25 years of successful operation.



ACCURATE MIXING of emulsions and aggregates according to McConnaughay Specifications designed to meet general as well as local requirements. All McConnaughay Licensees are experienced contractors who bring practical "know how" to mixing operations.

EFFICIENT LAYING... the final step in the coordinated service from laboratory to emulsifier to mixer to paver. Our extensive, closely-knit organization, fully experienced in all phases of the industry, gives assurance that McConnaughay Licensees will do the job right.

Look to your nearest McConnaughay Licensee for the fast, dependable service on any paving job. Fully equipped to take on complete contracts or provide the laboratory facilities, emulsions and technical services required... he is always ready to work with you closely in solving any problem. If you are figuring on highway, street, or general paving, get in touch with your nearest McConnaughay Licensee or contact...

McCONNAUGHAY LICENSEES Operating K. E. McConnaughay Emulsified Asphalt Plants

1. Wabash Valley Asphalt Co.
   Terre Haute, Indiana
2. Brookman Construction Co.
   17th & Gharkey Sts., *Muncie, Ind.*
3. Fauber Construction Co.
   Lafayette, Indiana
4. Asphalt Materials & Construction, Inc.
   960 E. 22nd, *Indianapolis 2, Ind.*
5. Ready-Mix Asphalt, Inc.
   P. O. Box 882, *Fort Wayne 6, Ind.*
6. Walsh & Ikeler
   R. R. #2, *Gary, Indiana*
7. Bituminous Materials Co.
   416 S. Water St., *Jackson, Mich.*
8. Bituminous Materials Co.
   318 Atlantic St., *Bay City, Mich.*
9. Emulsions, Inc.
   Lawrenceville, Illinois
10. Bituminous Materials & Supply Co.
    415 Maple St., *West Des Moines, Iowa*

    Plants:

11. *Spirit Lake, Iowa*
12. *Iowa City, Iowa*
13. *Menlo, Iowa*
14. Doherty and Swearingen Co.
    53 Main St., *Yarmouth, Maine*
15. Berkshire Asphalt Co., Inc.
    620 Berkshire Ave., *Springfield, Mass.*
16. James Huggins & Sons, Inc.
    Medford & Commercial Sts.
    Malden 48, Massachusetts
17. C. C. Plumb, Elmwood Station
    P. O. Box 65, *Providence 7, R. I.*
18. C. C. Plumb
    Portland, Connecticut
19. Albany Asphalt & Aggregates
    75 State St., *Albany, New York*
20. Knight Paving Products, Inc.
    1655 Union Rd., *Gardenville, N. Y.*
21. Knight Paving Products, Inc.
    Vine Street, *Ithaca, New York*
22. Knight Paving Products, Inc.
    1980 East Ave., *Rochester 10, N. Y.*
23. Knight-Bitumen Corp.
    Watertown, New York
24. Seaco, Incorporated
    2700 Industrial Drive, *Columbia, S. C.*
25. E. A. Mariani—Emulsified Asphalt
    Hooker's Point, *Tampa, Florida*
26. Pan-Am Southern Corporation
    P. O. Box 2, *New Orleans 6, La.*
    (Also serving Alabama and Mississippi
27. Emulsified Asphalt Co.
    Cuttawa, Kentucky
28. Asphalt Products Co., Inc.
    Powell Ave., *Nashville 11, Tenn.*
29. Bituminous Materials Co.
    P. O. Box 267, *Terre Haute, Ind.*

Eastern Representative:
John A. Dow
157 Church St., *New Haven 10, Conn.*

SPECIFICATIONS OF THESE COLD-MIX PROCESSES AVAILABLE ON REQUEST

1—Penetration Macadam, 2—Open-Graded Plant Mix, 3—Open-Graded Road Mix, 4—Dense-Graded Plant Mix, 5—Dense-Graded Road Mix, 6—Mat Coat, 7—Seal Coat, 8—Sand Mix, 9—Sand Honing, 10—Patching, 11—Mastic-Mix, 12—Driveway Construction.

K. E. McCONNAUGHAY LAFAYETTE INDIANA

EMULSIFIED ASPHALT PLANTS AND PROCESSES

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

CONNECTICUT—BA 1/9—State Hy. Dpt., State Office Bldg., Hartford,
Norwalk—approx. 2,500 lin. ft. temporary detour on the Merritt Parkway at Silvermine River, incl. temporary crossing over Silvermine River and Silvermine Ave. and paved with hot b. conc. 102-74. Plans deposit $6.43.

CONNECTICUT—BA 1/9—State Hy. Dpt., State Office Bldg., Hartford,
Canton—single span rolled beam bridge, concrete deck over Cherry Brook 500 lin. ft. hot b. conc. approaches, Rte. 179, 23-74. Plans deposit $2.47.
Norfolk—corrugated metal plate pipe-arch over Wood Creek, Rte. 72, 97-60. Plans deposit $2.22.
Sharon—install corrugated structural plate pipe with special endwalls, 36 lin. ft. hot b. conc. approaches, Rte. U. S. 7 to replace present masonry structure damaged by flood. 125-82. Plans deposit 99c.
Torrington—structural corrugated plate pipe arch on New Harwinton Rd., Rte. 72; 60 lin. ft. hot b. conc. approaches. 143-59. Plans deposit $2.97.
Simsbury—7x14 ft. rein.-con. box culvert over Hop Brook and 100 lin. ft. hot b. conc. approaches on Road 909. 128-68. Plans deposit $1.49.
Woodbury—single span rolled beam bridge over Nonnewaug River on Rte. 47 and 125 lin. ft. hot b. conc. approaches, all to replace steel I-beam bridge. 168-99. Plans deposit $3.46.

▲ **CONNECTICUT**—BA 1/9—State Hy. Dpt., State Office Bldg., Hartford,
Branford and Guilford—approx. 33,442 lin. ft. grading, drainage, b. conc. pavement, incl. grade separation structures at Featherbed Lane, Branford Steam RR, Rte. 146, Quarry Rd., Moose Hill Rd., Rte. 1, Long Hill Rd., West River, Rte. 77, State St., Goose Lane, Tanner Marsh Rd. Conn. Turpike. Proj. 320-01. State Work Order 320-03, est. $7,000,000. Plans deposit $20.27 (bridge plans only). $171.56.
East Haven and Branford—approx. 31,026 lin. ft. grading, drainage, pavement, incl. 12 grade separation structures over water and bridge over N. Y., N. H. & H. R.R., rein.-con. pavement 16,586 lin. ft. and b. conc. pavement 14,440 lin. ft. Conn. Turnpike. Proj. 319-01. State Work Order 319-03, est. $10,000,000. Plans deposit $115.94 (bridge plans only) $20.27.

BUILDINGS—BA

Conn., New Haven—BOILER HOUSE, WAREHOUSE—BA 1/11—State, P. Wks. Dpt., State Office Bldg., Hartford, boiler house, warehouse alterations, Woodruff Center, $90,000. Wm. Mislick, P. Wks. Dpt., 165 Capitol Ave., Hartford, archt.

Conn., Newington—RESIDENCE—BA 1/11—State, P. Wks. Dpt., State Office Bldg., Hartford, superintendent's residence at Cedarcrest Sanatorium. William Mislick, P. Wks. Dpt., 165 Capitol Ave., Hartford, archt.

BUILDINGS—LB & CA

▲ **Morton C. Tuttle Co.**, 862 Park Square Bldg., Boston, Mass. CA Approx. $1,000,000. 525x82x75 ft. assembly PLANT, Washington St., BATH, ME. Bath Iron Works Corp., 700 Washington St., Bath, Me. Morton C. Tuttle, 862 Park Square Bldg., Boston, Mass., engr. CD 5/31.

Henry M. Soule, 421 Walcott St., Pawtucket, R. I. CA $400,000. 1 story brick, Flora Curtis Memorial SCHOOL, PAWTUCKET, R. I. City, Pawtucket, R. I. Jos. Mosher & Son, 77 Washington St., Providence, R. I., archts.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

Pa., Lansdale—SWIMMING POOL—BA 1/16—Lansdale Boro Council, swimming pool, locker rooms, $100,000. CD 9/28.

† **Md., Andrews Air Force Base**—APRON PAVING—BA 1/19—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., west apron paving exten., ENG-49-080-56-19 (20). CD 12/19.

HEAVY CONSTRUCTION—LB & CA

Sylvan Pools, Inc., Doylestown, Pa. CA $100,000. swimming pool, snack bar, bath house, parking area, MORRISVILLE, PA. Post Road Pool & Beach Club, Inc., c/o Herman Silverman, Sylvan Pools, Inc., Doylestown, Pa.

BUILDINGS—LB & CA

Anthony P. Miller, Inc., 3333 Arctic Ave., Atlantic City, N. J. CA $500,000. MOTEL, Boardwalk, and Hartford Ave., ATLANTIC CITY, N. J. Matthew H. McCloskey, 3333 Arctic Ave., Atlantic City, N. J. Morton Keast, 1201 Chestnut St., Phila., Pa., archt.

Sarmur Realty Co., Inc., 8087 Cypress Ave., Brooklyn, N. Y. Separate Contracts. $344,000. RESIDENTIAL DEVELOPMENT, County Line Rd., LAKEWOOD, N. J. Frank A. Anodio, Red Bank, N. J., archt.

▲ **North Cape May Development Corp.**, c/o Carl Mitnick, 1080 Maple Ave., Colwick, N. J., Separate Contracts, $8,000,000. RESIDENTIAL DEVELOPMENT Bay Shore Rd. etc. NORTH CAPE MAY, N. J.

▲ **Sidney Elkman**, 17 and Thompson Sts., Phila., Pa. CA $10,000,000. SHOPPING CENTER, parking area, Lawrence Park, Marple Twp., BROOMALL, PA. Lawrence Park Shopping Center, 160 Long Lane, Upper Darby, Pa. CD 11/17.

Melvin Gardens, Inc., c/o Milton Berger, 1904 Girard Trust Bldg., Phila., Pa., Separate Contracts. $344,000. RESIDENTIAL DEVELOPMENT Melvin Ave., MORRISVILLE, PA.

B. Bornstein & Son., 2027 Arch St., Phila., Pa., LB $710,000. general constr., elementary SCHOOL, Palmer and Thompson Sts., PHILA., PA. Bd. Educ., 21 and Winter Sts., Phila., Pa. Bids Dec. 9. CD 11/30.

Barbeck Homes, Inc., c/o Sydney Feinstein, 68049 Oakland St., Phila., Pa., Separate Contracts, $350,000. RESIDENTIAL DEVELOPMENT Barbeck Ave., PHILA., PA. Henry S. Berg., 2411 Walnut St., Phila., archt.

McClain Constr. Co., 200 S. 13 St., Phila., Pa., CA $125,000. 1 story, steel, brick, 1,700 sq. ft. INDUSTRIAL bldg., Passyunk Ave. and 61 St., PHILA., PA. Owner, c/o Philip Mastrin, archt., Penn Square Bldg., Phila., Pa. Bids Dec. 9. CD 12/5.

C. R. Lange, 52 E. Lancaster Ave., Ardmore, Pa., Separate Contracts. $450,000. RESIDENTIAL DEVELOPMENT, Radnor Twp., WAYNE, PA. Earle Wenge, McClatchy Bldg., Upper Darby, Pa., archt.

▲ **Holland Development Co.**, c/o George Nole, Bustleton Ave., Feasterville, N. J. Separate Contracts. $1,230,000. RESIDENTIAL DEVELOPMENT Pine Brook Farms, YARDLEY, PA.

SOUTH

HEAVY CONSTRUCTION—BA

La., **Shreveport**—AIRPORT IMPRVS.—BA 1/10—City, City Hall, municipal airport parking and apron extens. $75,000. Plans deposit $10. Samuel G. Wiener, E. H. Freeman & Assoc., 980 Ordan St., Shreveport, engrs.

† **Va., Oceana**—EQUIPMENT, DRESSING ROOM—BA 1/10—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, equipment and dressing room, Naval Air Station, NOY 91818, Spec. 48320. Plans deposit $10. CD 10/12.

HEAVY CONSTRUCTION—LB & CA

Blackwell Engineers, Warrenton, Va., LB $469,675. (4 bidders) Contr. 46, primary sewage treatment plant with initial capacity of 0.75 m.g.d. FAIRFAX, VA. Fairfax Co., Court House, Fairfax, Va. Bids Dec. 19. CD 11/18.

† **Southern Industrial Piping Co.**, 3018 Leeland St., Houston, Tex. LB $96,850. est. $100,000. aircraft washrack, Lake Charles Air Force Base, ENG-41-243-56-26, LAKE CHARLES, LA. U. S. Eng., Box 1229, Galveston, Tex. Bids Dec. 15. CD 11/23.

MacDonald Engineering Co., 22 W. Madison Ave., Chicago, Ill., CA Est. $5,000,000 design and construct, cement PLANT addn., HARLEYVILLE, S. C. Giant Portland Cement Co., Architects Bldg., Phila., Pa.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

Ind., Fort Wayne—BA 1/10—Bd. P. Wks., Fort Wayne, sewer from near Brooklyn Ave. to Miller Rd., south for 785 ft.; sewer from near Adams St. between Evans and Ormsby Sts. west for 789 ft. CD 7/24/46.

Ill., Carthage—SWIMMING POOL—BA 1/18—Carthage Park Dist., Ralph B. Williams, secy., 45x100 ft. swimming pool, 20x25 ft. wading pool, rein.-con., brick bathhouse, $85,000, Larkin & Assoc., 19 E. Gregory Blvd., Kansas City, Mo., engrs.

† **O., Chillicothe**—ELECTRICAL SYS.—BA 1/31—Veterans Admin., Munitions Bldg., Wash., D. C., underground electrical sys., Veterans Admin. Hospital.

BUILDINGS—BA

Mich., Bloomfield Hills—SCHOOL—BA 1/10—Bd. Educ., Fraction School Dist. 3, 156 E. Square Lake Rd., Pontiac, Hickory Grove Elementary School. Plans deposit $25, Linn Smith, A.I.A., 114 S. Woodward Ave., Birmingham, archt.

HEAVY CONSTRUCTION—LB & CA

Carl Frank, Winona, Minn., LB $88,000 (3 bidders) sewage treatment plant, lift station, sewers, FOUNTAIN CITY, WIS. City, City Hall, Fountain City, Wis. Bids Dec. 13. CD 11/28.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **N. M., Alamogordo**—STORAGE—BA 1/10—U. S. Eng., Box 1538, Albuquerque, armament research storage, Holloman Air Force Base, ENG-29-005-56-23, $200,000. CD 12/14.

Tex., Amarillo—PARKS—BA 1/10—City, City Hall, municipal parks imprvs. $75,000.

† **Wyoming**—BA 1/10—Bureau Reclamation, Dpt. Interior, Riverton, earthwork, structures for open and closed drains, North Pavillion and North Portal areas. Riverton Proj., Spec. 617C-47.

† **Tex., El Paso**—BA 1/12—U. S. Eng., Box 1538, Albuquerque, N. M., 810 ft. deep water supply well, appurtenances, Fort Bliss, Inv. No. 29-005-56-56. $65,000. CD 9/29, under Public Buildings.

† **Kan., Salina**—QUARTERS—BA 1/13—U. S. Eng., Federal Office Bldg., Kansas City, Mo., officers' quarters and utilities, Smoky Hill Air Force Base, ENG-23-028-56-47. CD 12/21.

† **Minn., Duluth**—BULK STORAGE—BA 1/20—U. S. Eng., 1217, U. S. Post Office and Custom House, 180 E. Kellogg Blvd., St. Paul, Zone 1, GAR-1 bulk storage bldg. officers club addn., parachute and dinghy bldg. other facilities, Duluth Air Force Base, ENG-21-018-56-8. CD 12/16.

† **South Dakota**—BA 1/20—U. S. Eng., 1709 Jackson St., Omaha, Neb., earthwork, Stage V, Oahe Reservoir Proj. near Pierre, Inv. 25-066-56-75. CD 12/7.

† **Tex., Lubbock**—DINING HALL—BA 1/24—U. S. Eng., Box 1538, Albuquerque, N. M., dining hall and dormitory, Reese Air Force Base, ENG-29-005-56-55. $750,000. CD 12/14.

† **Mo., Sedalia**—HOUSING—BA 1/25—U. S. Eng., Federal Office Bldg., Kansas City, Mo., family housing, Whiteman (formerly Sedalia) Air Force Base, ENG-23-028-56-48. CD 12/12.

† **New Mexico**—BA 1/25—Bureau Reclamation, Dpt. Interior, Albuquerque, channel prototype channelization of Rio Grande, Casa Colorada Area, Middle Rio Grande Proj. near Belen, Spec. DC-4595. adv. ENR 12/29. CD 9/7/44.

Mo., Canton—BA 1/30—Town, Town clk., water distr. sys. exten., incl. 5,650 ft. 2- and 4-in. c.i. pipe, c.i. fittings, 7 gate valves, boxes, 7 fire hydrants. Frank Bearch, Kahoka, engr.

† **South Dakota**—SUPERVISORY CONTROL—BA 2/7—Bureau Reclamation, Dpt. Interior, Huron, S. D., install supervisory control, telemetering and carrier-courrent equip. for Huron, Groton and Watertown substations, Missouri River Basin Proj. Transmission Div., Spec. DC-4593.

BUILDINGS—BA

Tex., Mexia—WARD BLDG.—BA 1/5—Bd. for Texas State Hospitals & Special Schools, 4405 Lamar Blvd., Box 5, Capitol Station, Austin, 68,000 sq. ft. steel frame, masonry Ward Bldg. for Mexia State School. $425,000. George L. Dahl, 2101 N. St. Paul St., Dallas, engr.-archt. CD 11/23.

▲ **Tex., Dallas**—OFFICE—BA 1/6—Dallas Federal Savings & Loan Assn., c/o E. E. Shelton, Magnolia Bldg., 16-story 96x99 ft. brick, limestone, concrete and structural steel frame office, bsmnt., subbsmnt. $3,000,000. Plans deposit $25. Extended date. George L. Dahl, 2101 N. St. Paul St., archt.-engr. CD 12/6.

N. M., Portales—TECHNOLOGY, ETC.—BA 1/10—Eastern New Mexico University, Portales, technology bldg. Job No. 384, $400,000; music bldg. and mechanical equip. bldg., Job No. 385, $375,000, theatre, Job No. 383, $350,000, Schaefer, Merrell & Assoc., 111 E. 14 St., Clovis, archts. CD 10/28.

Colo., Colorado Springs—PLANT—BA 1/18—City, 18 S. Nevada Ave., George G. Birdsall Municipal electric plant addn., incl. superstructure and cooling tower basin. Lutz & May, Finance Bldg. Kansas City, Mo., engrs. CD 10/18/54.

▲ **Tex., Houston**—HIGH SCHOOL—BA 2/2—Houston Independent School Dist., 1300 Capitol St., 150,000 sq. ft. masonry, steel, concrete frame, Frank M. Black Junior High School. $2,225,000. Ford, Colley & Tamminga, 3416-A Louisiana and Stayton Nunn, 3272 Westheimer St., archts. Miles F. Wortham & Assocs., 4908 Travis St., engrs. CD 6/23/47.

HEAVY CONSTRUCTION—LB & CA

Davenport Electric Contract Co., 529 Pershing St., Davenport, Iowa. CA $109,154. traffic control system, DAVENPORT, IOWA. City, City Hall, Davenport, Iowa. Bids Dec. 6.

Thompson Pipe & Steel Co., 3001 Larimer St., Denver, Colo. LB $42,171. Sect. A, station header and northwest feeder main, DES MOINES, IOWA. City, Bd. Water Trustees, City Hall, Des Moines, Iowa. Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago, Ill., engrs. Bids Dec. 1. CD 1/17.
Quad City Constr. Co., Rock Island, Ill. LB $458,150. Sect. C (Des Moines, Iowa).

Doraloson Engr. & Constr. Co., Maryville, Mo. CA $92,147. sewers, ASH GROVE, MO. City, Ash Grove, Mo. Bids Dec. 2. CD 11/25.

Foster-Smetana Co., 4360 Nicholas St., Omaha, Neb., LB $307,777, changes, imprvs. in race track grandstand, OMAHA, NEB. Ak-Sar-Ben, 212 Patterson Bldg., Omaha, Neb. L. A. Daly Co., Insurance Bldg., Omaha, archt. Bids Dec. 2.

TEXAS—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,
Harry Newton, Inc., Graham Land Office Bldg., Graham, Tex., CA $855,587, Proj. D FW 43, continuous rolled beam and plate girder bridges, Tarrant Rd., Belt Line Rd. Interchange (3 bridges) Belt Line Rd. over Trinity River, Relief Bridge Revision on Belt Line Rd. and Meyers Rd. Bids Dec. 14, awarded Dec. 19. CD 12/19, under LB.

▲ TEXAS—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,
Cage Bros., 6959 San Pedro St., San Antonio, Tex. CA $2,196,273. grading, drainage 5.602 mi. Hy. from proposed connection with Fort Worth Freeways near Boaz St. to approx. 0.5 mi. west of Ederville Rd. Proj. D FW 41, Tarrant Co. Bids Dec. 13, awarded Dec. 19. CD 12/19 under LB.

▲ TEXAS—State Hy. Comn., Austin,
Killian House Co., 4600 Broadway, San Antonio, Tex. CA $2,536,448. grading, drainage, structures, pavement 1.194 mi. Hy. US 81, Proj. UI 1083 (18), Bexar Co. Bids Dec. 14, awarded Dec. 19. CD 12/19, under LB.

Community Telephone Co., Windthorst, Tex., Own Forces, $190,000. existing communication sys. imprvs., new rural pole telephone lines, Windthorst, TEXAS. CD 6/15.

City, Denton, Tex. Own Forces. $90,000, water lines; DENTON, TEX. CD 9/29/54.

Pelt & Foley, Builders, 710 Pentagon Parkway, Dallas, Tex., CA $44,910, water lines, facilities, GRAND PRAIRIE, TEX. Hub Hill & Assocs., 2121 N. Field St., Dallas, Tex.

Pelt & Foley, Builders, 710 Pentagon Parkway, Dallas, Tex., CA $77,000, sanitary sewers; CA $75,000, storm sewers, GRAND PRAIRIE, TEX. Hub Hill & Assocs., 2121 N. Field St., Dallas, Tex. CD 11/7.

Pelt & Foley, Builders, 710 Pentagon Parkway, Dallas, Tex., CA $47,000, bldg site grading, general earthwork, GRAND PRAIRIE, TEX. Hub Hill & Assocs., 2121 N. Field St., Dallas, Tex.

Pelt & Foley, Builders, 710 Pentagon Parkway, Dallas, Tex., CA $78,125, asphalt paved streets, curb and gutter, GRAND PRAIRIE, TEX. Hub Hill & Assocs. 2121 N. Field St., Dallas, Tex.

Pelt & Foley, Builders, 710 Pentagon Parkway, Dallas, Tex., CA $76,125, natural gas lines, GRAND PRAIRIE, TEX. Hub Hill & Assocs., 2121 N. Field St., Dallas, Tex.

Menefee Brothers, Center, Tex. LB $79,110. est. $100,000. Phase 1, water pump station, 18-in. c. i. water lines; LB $225,175. est $250,000. Phase 2, dam and spillway on Gum Creek, JACKSONVILLE, TEX, City, Jacksonville, Tex. Bids Dec. 16. CD 11/16.

† **E. H. Conrad**, 150 Simpson St., San Antonio 4, Tex. LB $10?,496. est. $200,000. aircraft washrack, incl. 16-in. conc. pavement, ENG-41-243-56-16. KELLY AIR FORCE BASE, TEX. U. S. Eng., Box 1229, Galveston, Tex. Bids Dec. 14. CD 11/10.

† **Burnett Constr. Co.**, Box 336, Corpus Christi, Tex., LB $526,800. est. $100,000-$350,000. bachelor officers' quarters, 3 story 34x305 ft. and wings 31x43 ft. and 34x94 ft., concrete, masonry constr.; Naval Auxiliary Air Station, NOY 88994. KINGSVILLE, TEX. Dpt. Navy, Bureau Yards & Docks, Admin. Bldg. No. 1, Naval Air Station, Corpus Christi, Tex. Bids Dec. 13. CD 11/10.

City, Kerens, Tex., rejected bids Nov. 17, water pump plant imprv. and sewage treatment plant, LB $102,-576, KERENS, TEX. CD 11/29, under LB.

Bay Area Council, Boy Scouts of America, c/o Camp Mohawk, Alvin, Tex. or c/o M. M. Galloway, West Columbia, Tex., Purchase and Hire, $225,000, 206-acre camp site, playgrounds, athletic courts, rest rooms, appurtenances, WEST COLUMBIA, TEX. CD 1/19/55.

COLORADO—State Hy. Dpt., 4201 E. Arkansas St., Denver, Colo.—**L. J. Hesser**, Box 806, Greeley, Colo., CA $119,164. est. $112,000, grading, stabilization, structures and road mix asphaltic processing 3.612 mi. State Hy. 14, Proj. No. S 0024 (12), Weld Co.;
Colo.—**Blanchard Constr. Co.**, Box 268, Derby, Colo., CA $198,863. est. $182,000, grading, structures, stab. and asphaltic surf. 5.114 mi. Proj. No. C 27-0054-16, Washington Co. Bids Dec. 15, awarded Dec. 15.

BUILDINGS—LB & CA

Winn-Senter Constr. Co., 901 W. 43 St., Kansas City, Mo. CA $650,000. 2 story, bsmnt., 37,000 sq. ft. OFFICE, KANSAS CITY, MO. Black & Veatch, Engineers, 75 and State Line, Kansas City, Mo. Edw. W. Tanner & Assoc., 310 Ward Pkwy., Kansas City, Mo., archts. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs.

J. J. Holmes, Littlefield Bldg., Austin, Tex. Own Forces. $384,910, 36 DWELLINGS; $429,485, 41 DWELLINGS, ABILENE, TEX. CD 9/2.

Longhorn Investment Co., 9620 John West Rd., Dallas, Tex. Own Forces. $371,225, (D) 33 DWELLINGS; $365,150, (E) 28 DWELLINGS, ABILENE, TEX. CD 9/2.

Inwood Constr. Co., 507 Trinity Universal Bldg., Dallas, Tex., LB $330,000. WAREHOUSE, DALLAS, TEX. Minnesota Mining & Mfg. Co., 1220 Dragon St., Dallas, Tex. Bids Dec. 30. CD 12/6.

Vernon & James Smith Co., 2151 Fort Worth Ave., Dallas, Tex. Own Forces. $355,000, 4 masonry DWELLINGS, DALLAS, TEX. CD 9/28.

Jack Neece and Mahaffey-Wagner, 10418 Garland Rd., Dallas, Tex. Own Forces. $396,700, 38 DWELLINGS, DALLAS, TEX. CD 9/19.

J. S. Thorn Co., 2028 Farrington St., Dallas, Tex. Purchase and Hire, $175,000. WAREHOUSE, distribution center, DALLAS, TEX. CD 10/17.

International Estates Subdivision, c/o R. W. Baxter, Rio Grande Natl. Bldg., Dallas, Tex. Own Forces. $378,162, 36 DWELLINGS; $396,810, 41 DWELLINGS, GRAND PRAIRIE, TEX. CD 10/27.

▲ **Farnsworth & Chambers Co., Inc.**, Box 74, Houston Tex., CA $2,667,000, est. $2,750,000. 15 story HOSPITAL unit and appurtenances, HOUSTON, TEX. M. D. Anderson Foundation and Hermann Hospital Estate, 1st Natl. Bank Bldg., Houston, Tex. Bids Nov. 22. CD 11/30, under LB.

Riggs & Majors, 207 S. Rugel St., Mesquite, Tex. Owner Builds. $366,500, 12 masonry DWELLINGS; $410,-775, 21 DWELLINGS, MESQUITE, TEX. CD 9/28.

Morris Coon, Homebuilder, Pasadena, and Orange, Tex. Owner Builds. $360,000, 30 DWELLINGS; $352,500, 22 DWELLINGS in Sect. 3, ORANGE, TEX. CD 9/28.

▲ **Parker Brothers & Co. Inc.**, 5303 Navigation Blvd., Houston, Tex. Own Forces. $365,210, 30 DWELLINGS; $351,500, 28 DWELLINGS; $372,900, 36 DWELLINGS; $368,000, 34 DWELLINGS. Grand total $1,457,610. PASADENA, TEX. CD 11/11.

Prudential Builders, Inc., Richardson, Tex. Own Forces. $374,145, 29 DWELLINGS; $382,325, 30 DWELLINGS, RICHARDSON, TEX. CD 8/31.

▲ **National Bank of Commerce**, Soledad and Travis Sts., San Antonio, Tex., rejected bids Dec. 13, 20-story BANK, OFFICE, LB $6,569,722. SAN ANTONIO, TEX. CD 12/16, under LB.

B. F. Horn Co., Box 439, Abilene, Tex., LB $465,000, est. $630,000. COURT HOUSE addn., SEMINOLE, TEX. Gaines Co., Court House, Seminole, Tex. Bids Dec. 8. CD 11/23.

N. R. Nielsen & Son, 75 S. Elati St., Denver, Colo., CA $378,125, general constr., 1 story brick SCHOOL, Cherryvale Rd., BOULDER, COLO. Fairview Consolidated School Dist., Boulder, Colo. Atchison & Kloverstrom, 257 Josephine St., Denver, archts.-engrs. Bids Dec. 14, awarded Dec. 15. CD 11/25.

F. J. Kirchhof Constr. Co., 700 Larimer St., Denver, Colo., LB $704,184, est. $500,000. 1 story CHURCH addn., DENVER, COLO. Montview Boulevard Presbyterian Church, Montview Blvd. and Dahlia St., Denver, Colo. Edward F. Jansson, 740 N. Rush St., Chicago, Ill., archt. Peterson & Linstedt, 1707 Gilpin St., Denver, assoc. archts. Joseph W. Sallada, 1623 E. 17 St., Denver, engr. Bids Dec. 16.

Perlite *Insulating* Concrete Solves ROOF DESIGN Problems

Versatile perlite insulating concrete fits almost any roof design. Thickness and mix proportions can be varied to provide required U factor, strength and weight (as low as 4½ lb/sq. ft.). The lightweight, monolithic fill is durable and workable as concrete, conforms to any surface. For example:

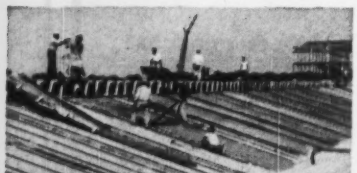
MILE HIGH CENTER, DENVER
Architects: Webb & Knapp

CURVED SHELL DESIGNS

Striking curved roof of Transportation Building in Denver's Mile High Center is insulated with perlite concrete bonded to thin structural shell. Monolithic fill eliminated cutting and shaping insulation to fit around 156 light fixure boxes and conduits which pierce 3-inch structural concrete deck.

PITCHED ROOFS

Even on steep slopes, as at Kentucky's mammoth new State Fairgrounds in Louisville, perlite concrete over formboard and bulb tees combines insulation and structural strength, makes a firm rot-proof base for nailed-on roofing.



KENTUCKY STATE FAIRGROUNDS
Architect: Fred Elswick and Associates

See Sweet's, or write for specification data

INSULATION PLUS DRAINAGE SLOPE

On flat decks, perlite concrete does double duty as needed insulation and lightweight fill to create drainage slope. No additional insulation needed.

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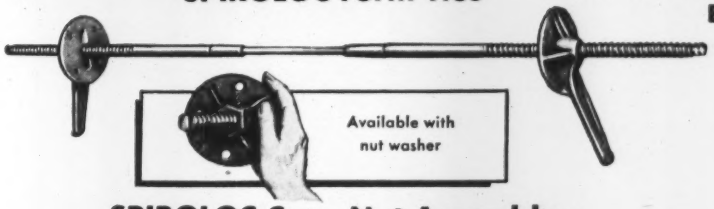

- Greater tie strength for heavy construction
- Fewer ties per sq. ft. of form area. LOWER MATERIAL and LABOR COSTS
- Positive breakbacks
- Permanent, reuseable equipment
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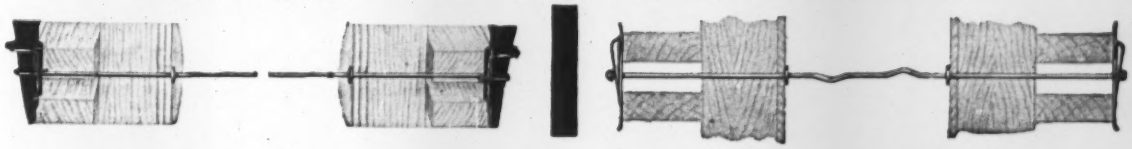
Positive Spreader Ties for all types of Concrete Construction



Combination wedge and bearing plate . . . easy application . . . won't twist or fall off —ample take-up.

- Low cost ties for job-built or prefabricated forms
- Used with or without walers
- Accurate breakback . . . minimum plug required
- Choice of Spreader Washer . . . 7/8" flat is standard
- Rugged Twistye and Snap Tie Clamps have extra bearing surface . . . additional safety factor

Curved ends speed installation and stripping . . . long slope wedge for ample take-up. Extra nail holes permit nailing clamp in any position.

FORM CLAMPS

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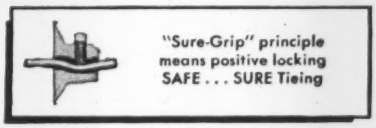

- 2 Form clamps and a mild steel rod make a tie to handle any condition
- Wide clamp base gives more bearing on waler . . . won't "bite" at maximum loads
- Notched base permits nailing to waler

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FAR WEST

HEAVY CONSTRUCTION—BA

† **Washington**—CLEARING CONTROL AND LAUNCHING AREAS—BA 1/17—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, clearing Vashon and Young Lake control and launching areas in Redmond Control area, Eng. 45-108-56-101.

† **Oregon**—BA 1/19—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., earthwork, pipe lines, structures for Antelope Creek siphon and Bear Creek siphon and wasteway for Hopkins canal rehabilitation, Rouge River Proj., Jackson Co., Spec. DC 4510. CD 11/15, under LB.

BUILDINGS—BA

Ariz., Phoenix—TERMINAL—Bids Asked—Union Oil Co. of Calif., 617 W. 7th St., Los Angeles 17, Calif., pipe line terminal and 5.5 mi. 4 in. pipe line. $668,000. Ehrhardt & Assocs., c/o owner, engr.

Calif., Colton—TERMINAL, MARKETING STATION—Bids Asked—Union Oil Co. of Calif., 617 W. 7th St., Los Angeles, Zone 17, pipeline terminal and marketing station. $450,000. Ehrhardt & Assoc., c/o owner, engrs. CD 5/27/49.

HEAVY CONSTRUCTION—LB & CA

NEVADA—Dirs. Dpt. Hys., State Office Bldg., Carson City.

H. Earl Parker, 531 12th St., Marysville, Calif., CA **$79,200**, portion State Hy. Sys. between 1 mi. easterly of Spooners Summit and ¼ mi. westerly of Junct. U. S. Rte. 395 (3 mi. south of Carson City), Rte. Sect. 002-1, Control Sects. DO-02 and OR 01. Proj. No. F-002-1 (5), State Hy. Contr. 942, Douglas and Ormsby Counties. Bids Dec. 15. CD 12/5.

Sacramento Constr. Co., 2104 16th St., Sacramento, Calif., LB **$75,897**, (8 bidders) swimming pool, bathhouse at Tahoe Park, SACRAMENTO, CALIF. City, City Hall, 8th and I Sts., Sacramento, Calif. Bids Dec. 13. CD 12/1.

BUILDINGS—LB & CA

▲ **Hoefer Constr. Co.**, 16645 Orange Way, Fontana, Calif., LB **$1,031,780**, Elementary SCHOOLS Nos. 13, 14 and 15, ONTARIO, CALIF. Ontario Elementary School Dist., Ontario, Calif. Bids Dec. 15. CD 11/22.

▲ **Peter Kiewit Sons Co.**, 345 Kieways St., Arcadia, Calif., LB **$1,173,925**, Pasadena City COLLEGE ADDNS., PASADENA, CALIF. Pasadena Bd. Educ., 351 S. Hudson Ave., Pasadena, Calif. Bids Dec. 20. CD 11/28.

CANADA

HEAVY CONSTRUCTION—BA

B. C., Victoria—WHARF—BA 1/11—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf for hydrographic service. J. P. Carriere, c/o owner, engr.

HEAVY CONSTRUCTION—LB & CA

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto, **Dominion Bridge Co., Ltd.**, 1139 Shaw St., Toronto, Ont. LB **$2,405,000**. (2 bidders) structural steel for superstructure of central 3-span section of Burlington high level bridge, 495 ft. main span and two flanking spans of 275 ft. each, Part D of bridge, Contr. 55-200, Burlington. Wm. R. Souter & Assoc., 36 James St. S., Hamilton, Ont., archts. Foundation of Canada Engineering Corp., Ltd., 200 Bloor St. E., Toronto, Ont., engrs. Bids Nov. 9. CD 10/7.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto, **Peel Constr. Co. Ltd.**, 75 Main St. W., Brampton, Ont. LB **$679,365**, est. $650,000. (11 bidders) granular base, hot mix paving along 6.6 mi. of Hy. No. 401, plus two cloverleafs, from 0.35 mi. west of Hy. No. 73 to 0.69 mi. west of Victoria Rd., Contr. 55-232, London. Bids Dec. 7. CD 12/1.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto, **John Gaffney Constr. Co., Ltd.**, 29 Downie St., Stratford, Ont. LB **$237,546**. (4 bidders) grading, culverts, granular base, structures on Hy. No. 81, structures at Ausable River and Mud Creek with connecting grading, etc., Contr. 55-274, London. CD 11/5/53.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ **Australia**—BA 3/26—Dpt. P. Wks., J. B. Renshaw, Minister of P. Wks., Sydney, N.S.W., Australia, embankments, intake structure, stilling basin, etc. at Adaminaby Dam, main embankment will be an earth and rockfill structure with total volume of approx. 9,500,000 cu. yds. Plans deposit $23.50; adv. ENR 1/6.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Poway—Poway Municipal Water Dist. No. 1, Poway, voted **$155,000** bonds, imprv. water system. Boyle Eng. Co., 3913 Ohio St., San Diego, consult. engr.

▲ **Ill., Mattoon**—City, City Hall, reservoir, **$1,300,000**. Wilson & Anderson, 6½ Taylor St., Champaign, consult. engrs. CD 7/27/44.

Ky., Somerset—Kentucky Water Service, Inc., Somerset, pumping and water filtration plant on Lake Cumberland near Burnside, 22,000 ft. new transmission lines, 990 ft. branch distr. lines, **$536,858**.

Minn., Preston—Village, C. P. Grebin, clk., imprvs. municipal water sys., **$100,000**.

Mo., Maryville—City, water imprvs., **$814,600-$995,600**. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs.

▲ **N. Y., Buffalo**—Erie County Water Auth., Ellicott Square Bldg., trunk mains, booster pumping stations, storage facilities, intake, pumping station, 16 m.g filtration station at Sturgeon Point, incl. 30-mi. pipeline and pump station, town of Evans, **$13,463,000**. Buck, Seifert & Jost, 112 E. 19 St., New York, consult. engrs. Bids in 1957.

N. Y., Syracuse—City, City Hall, line certain portions of water conduit system where leakage is distributed over the pipe line, **$200,000-$300,000**. Potter W. Kelly, city engr. CD 1/18/52.

N. C., Statesville—City, City Hall, water and sewer imprvs., **$125,000**; water shed reservoir, **$550,000**.

▲ **Okla., Oklahoma City**—City, City Hall, voted bonds Dec. 13, WW exten. and imprvs. **$13,976,000**. CD 11/7.

Tex., Deer Park—Town, voted bonds Dec. 10, WW rehabilitation, **$60,000**; water lines, **$260,000**; Robert W. Kelley, Baytown, Tex., consult. engr. CD 11/29.

▲ **Wash., Port Townsend**—City, City Hall, rehabilitate supply line, **$2,200,000**.

Alta., Medicine Hat—City, City Hall, waterworks expansion, **$582,120**. Montreal Eng. Corp. Ltd., 244 James St. W., Montreal, Que., consult. engrs. CD 5/10/44.

SEWERS, WASTE DISPOSAL

▲ **Calif., Fontana**—City, **$1,655,000** bond election January 10, sewage disposal sys. Foulke, Crist & Brodie, 2230 Arrowhead Ave., San Bernardino, consult. engrs.

Calif., Novato—Sanitary Dist. No. 6, c/o Pres. Bd. of Directors, 1062 Machin Ave., sewage treatment plant. **$325,000**.

Calif., Oxnard—City, City Hall, voted **$400,000** bonds, storm drain system. CD 10/17.

Ill., Lincoln—City, City Hall, (1) sanitary sewers (2) sewage treatment plant (3) pumping station, **$360,000**. Crawford, Murphy & Tilly, 400½ E. Adams St., Springfield, consult. engrs. CD 3/30/53.

Ill., Westmont—Westmont Surface Water Protection Dist., 3923 Hahndorf Rd., Westmont, storm sewerage sys., **$200,000**. Wright & Co., 1038 Curtis St., Downers Grove, consult. engrs.

▲ **Ind., Gary**—Gary Sanitary Dist., City Hall, Chase St. Interceptor, **$1,500,000**. Hurst Roche Eng. Co., Hillsboro, Ill., consult. engr. CD 10/27/54.

Iowa, Cedar Rapids—City, sanitary sewer imprvs., **$500,000**. H. R. Green Co., 417 First Ave. S.E., Cedar Rapids, consult. engr.

Mich., St. Clair—City, sewage disposal plant, treatment facilities, **$300,000**. CD 2/13/46.

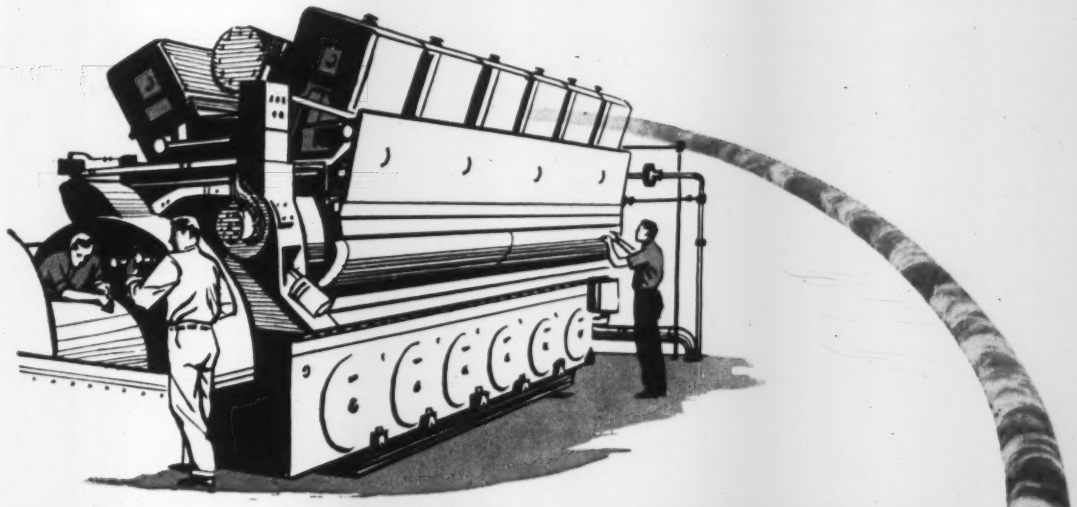
Minn., Olivia—Village, Mrs. Sylvia Wiersma, clk., sewage disposal plant, **$400,000**. G. M. Orr Engr. Co., 1004 Marquette Ave., Minneapolis, consult. engr. CD 5/19/53.

▲ **Minn., Mahtomedi (St. Paul P.O.)**—Village, H. L. Danforth, ch. council's special sewer comn., sanitary sewer pipe line, connecting with Minneapolis-St. Paul sanitary district lines, **$1,285,000**. To go ahead in 1956.

▲ **Mo., St. Louis County**—Metropolitan St. Louis Sewer Dist., William Q. Kehr, exec. dir., 506 Olive St., St. Louis, Zone 1, major trunk sewer sys. to serve Florissant, Hazelwood, part of Berkeley, St. Ann and St. John-Overland sewer district and adjacent area in Coldwater Creek section of northwestern part of county involving 8 mi. sewer ranging from 36-in. to 5x6 ft., sewage treatment plant, $3,500,000. May vote on bonds in May 1956. CD 9/15.

N. Y., Syracuse—City, City Hall, storm relief sewer in Teall Ave. from Peck Ave. to Grant Blvd. and in Grant Blvd. to Eastwood Rd., **$90,000**; storm relief sewer in State Fair Blvd. from Harbor Brook to Hiawatha Blvd., **$75,000**. Potter W. Kelly, city engr. CD 10/27/44.

O., Jefferson—Village, Town Hall, sewage treatment plant, **$125,000**. Willard F. Shade & Assocs., 401 Chester-12th Bldg., Cleveland, Zone 14, consult. engrs. CD 11/15.



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O., **New Carlisle**—City, sanitary treatment plant addns. and remodeling, $150,000. Walter Manion, 914 Main St., Cincinnati, consult. engr. Bids Asked January 1956.

▲ **Okla., Oklahoma City**—City Hall, voted bonds Dec. 13, sanitary sewer imprvs. and extens. $3,000,000; storm sewer extens. and imprvs., $2,900,000. W. W. Baker, city engr. CD 11/7.

Okla., Stroud—City, voted bonds Dec. 13, sanitary sewers, sewage disposal plant, $104,000. Lee M. Bush & Co., Colcord Bldg., Oklahoma City, consult. engrs.

Tex., Deer Park—City, voted bonds Dec. 10, sanitary sewer lines, $200,000; sewage disposal unit, $110,000. Robert W. Kelley, Baytown, consult. engr. Cancelled bond election Dec. 10 for storm sewers, $300,000. CD 11/29.

Wis., Cudahy—City, 3619 E. Layton Ave., sanitary sewers, pumping station, force main in S. Lake Dr. and W. College Ave. J. Tiry, city engr.

▲ **B. C., Nanaimo**—City, City Hall, sewer treatment plant and collection sys., $1,500,000. Walker & Graham, 626 W. Pender St., Vancouver, consult. engrs.

Ont., Amherstburg—Town, Dr. E. M. Warren, mayor, interceptor sewer, sewage disposal plant. $372,500. C. G. R. Armstrong, Bartlett Bldg., Windsor, engr.

Ont., Stratford—City Council, W. P. Gregory, mayor, sewage disposal plant. $100,000-$150,000. Roger K. Brown, city engr. CD 9/29/44.

BRIDGES

Conn., Hartford—City, Municipal Bldg., Main St. Bridge over Whitehead Hy. $300,000. Winfred W. DeMay, city engr.

Ill., Decatur—City, City Hall, subway structure. $460,000.

NORTH CAROLINA—State Hy. & P. Wks. Comn., Raleigh,

Warren Co.—bridge approaches over Roanoke River to replace Old Eaton Ferry. $300,000. Wm. H. Rogers, Jr., state hy engr.

▲ **Okla., Oklahoma City**—City, City Hall, defeated bonds Dec. 13, river bridges, $1,095,000. W. W. Baker, city engr. CD 11/7.

Wash., Yakima—City, City Hall, bond election Mar. 13, overpass, Lenox Ave. $450,000. CD 11/23.

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STREETS AND ROADS

Ala., Birmingham—City, Dpt. P. Imprvt. City Hall, 19 St. North extension and repair, near downtown area, $352,000. CD 12/2/53.

CALIFORNIA—State Div. Hys., 1120 N St., Sacramento,

Lassen Co.—surf. 5 mi. Bieber cutoff from 1 mi. northeast to 5 mi. east of Bieber. FAS S 1246 (1). $84,500.

Merced Co.—grading, surf. 2.7 mi. from 7th St. in South Dos Palos to Elgin Ave. in Dos Palos, FAS S 1198 (2). $191,428.

San Bernardino Co.—grading, surf. 3.8 mi. on Base Line Rd. from Sierra Ave., 0.5 mi. north of Fontana to Riverside Ave. in Rialto, FAS S 710 (3). $200,000.

San Luis Obispo Co.—grade, surf. and structure 0.7 mi. San Luis Obispo-Avila cutoff from See Canyon Creek to the Ontario Springs-Avila Rd., FAS S 1238 (1). $87,200.

Tulare Co.—grading, surf. 2 mi. from Grevilla St., 0.5 mi. south of Porterville to Porterville State Hospital, FAS S 1212 (1). $110,000. Bids in March or April.

Mich., Saginaw—City, C. A. Miller, mgr., conc. 6.5 mi. major projs. on 20 streets, 5 mi. residential sections on 40 streets, $750,000, Carl T. Dust, city engr.

▲ **NEW JERSEY**—New Jersey Hy. Auth., Roberts Estate, Tinton Rd., Eatontown,

Bergen Co.—parkway from Northern terminus of Garden State Parkway at Paramus to connect with New York State Thruway at Montvale, $18,000,000. Fay, Spofford & Thorndike, 11 Beacon St., Boston Mass., consult. engrs.

N. Y., Syracuse—City, City Hall, wid'n. Burnet Ave. from Lodi to North Beach St., $150,000.

wid'n. Irving Ave. from E. Water St. to E. Genesee St., $120,000.

wid'n. Irving Ave. from University Pl. to Raynor Ave., $95,000.

wid'n. South Ave. from Bellevue Ave. to Hovey St.

wid'n. State Fair Blvd. from Harbor Brook to Hiawatha Blvd. also raise the grade, $200,000; wid'n. Tallman St. from Lincoln Ave. to Hudson St., $75,000. Potter W. Kelly, city engr. CD 4/1/48.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh,

Ashbe Co.—grading and related work for relocation of N. C. Rte. 16, from Crumpler to Va. State Line, $450,000.

Catawba Co.—grading and related work for addnl. lane for US 64, US 70, US 321, between US 321 east of Hickory to US 321 in Hickory. $350,000.

Craven Co.—bypass around Bridgeton, on US Rte. 17, $100,000.

Forsyth Co.—imprvs. US Rte. 52 in Old Salem, $400,000. Wm. H. Rogers, Jr., c/o owner, state hy. engr.

▲ **Okla., Oklahoma City**—City, City Hall, defeated bonds Dec. 13, arterial traffic ways, $4,105,000. W. W. Baker, city engr. CD 11/7.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto,

Toronto—interchange on No. 27 Hy. $200,000. CD 11/5/43.

EARTHWORK, WATERWAYS

▲ **Okla., Oklahoma City**—City, City Hall, defeated bonds Dec. 13, North Canadian River floodway exten. $1,150,000. W. W. Baker, city engr. CD 11/7.

Tex., Deer Park—City, voted bonds Dec. 10, open drainage, $100,000. CD 11/29.

Ontario—Ausable River Auth., c/o M. M. Dillon & Co. Ltd., consult. engrs., 141 Maple St., London, 600 ft., earth fill dam with 20 ft. concrete spillway and 30 ft. roadway over top, dam and flood control sys., about 1 mi. east of Exeter, $141,000. CD 1/31.

AIRPORTS

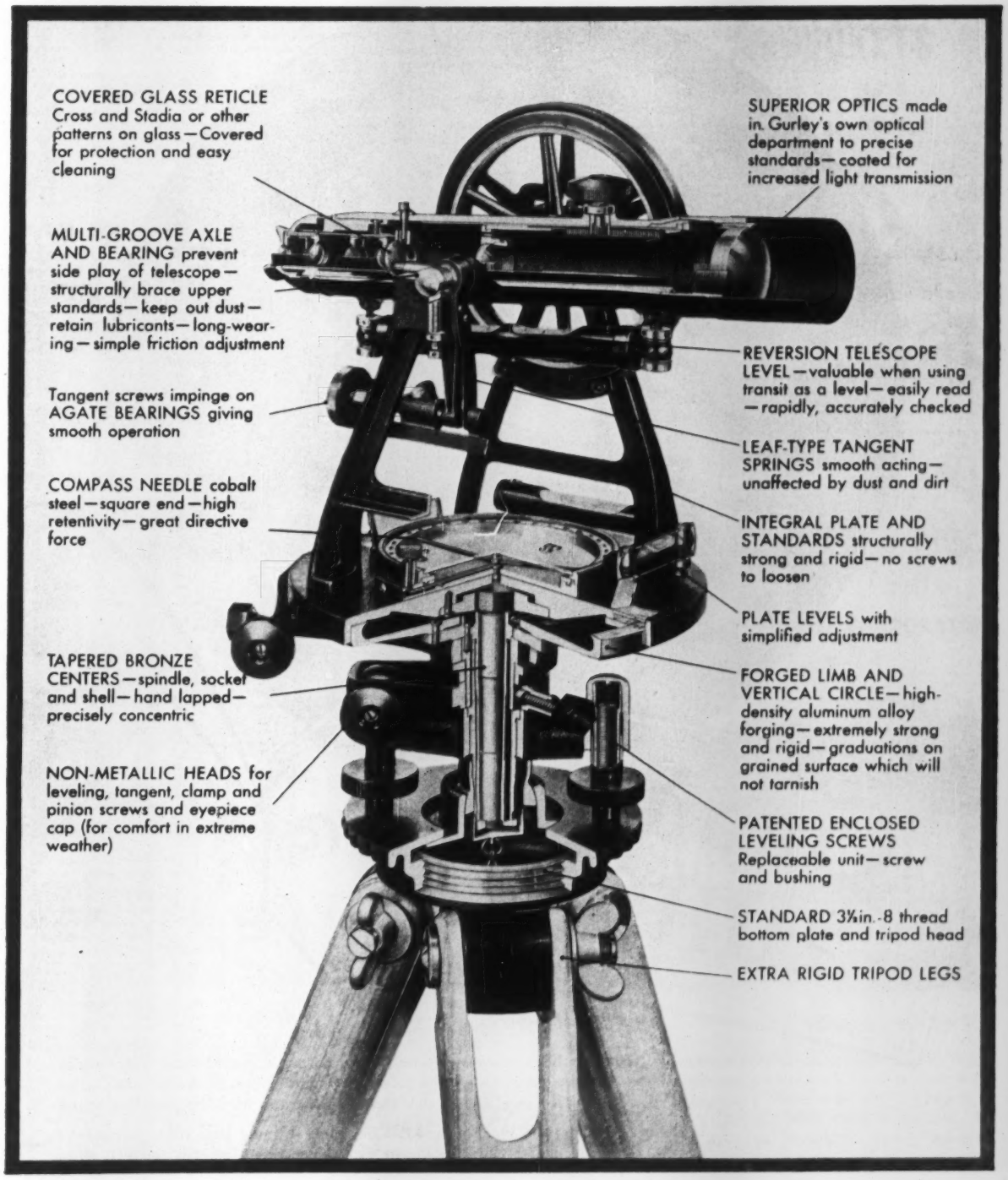
▲† **Calif., El Toro**—RECREATIONAL FACILITIES, etc.—Eleventh Naval Dist., San Diego, outdoor recreational facilities, $170,000; aircraft parking area, $840,000; communications $105,000; taxiway $145,000; Bids about Jan. 1956; storage facilities, $350,000; radar air traffic control center, $380,000; Bids about Feb. 1956; special weapons facilities $210,000; airfield pavement, $170,000; Bids about June 1956, all foregoing at El Toro Marine Corps Air Station. CD 10/11.

▲† **Calif., Mojave**—HOUSING, etc.—Eleventh Naval Dist., San Diego, family housing, $1,800,000; Bids about April 1956; vehicle maintenance facilities, $83,000, at Naval Auxiliary Air Station. Bids about Jan. 1956.

† **Calif., Point Mugu**—B.O.Q., etc.—Eleventh Naval Dist., San Diego, B.O.Q. and mess facilities, Air Missile Test Center, $325,000. Bids About May 1956. CD 10/22/54.

† **Calif., San Bernardino**—TRAINING—U. S. Eng., 751 S. Figueroa St., Los Angeles, air reserve center general technical training bldg., $450,000.

Okla., Tulsa—RUNWAYS—City, City Hall, runways at Municipal Airport. $700,000. W. R. Wooten, city engr. CD 12/1/54.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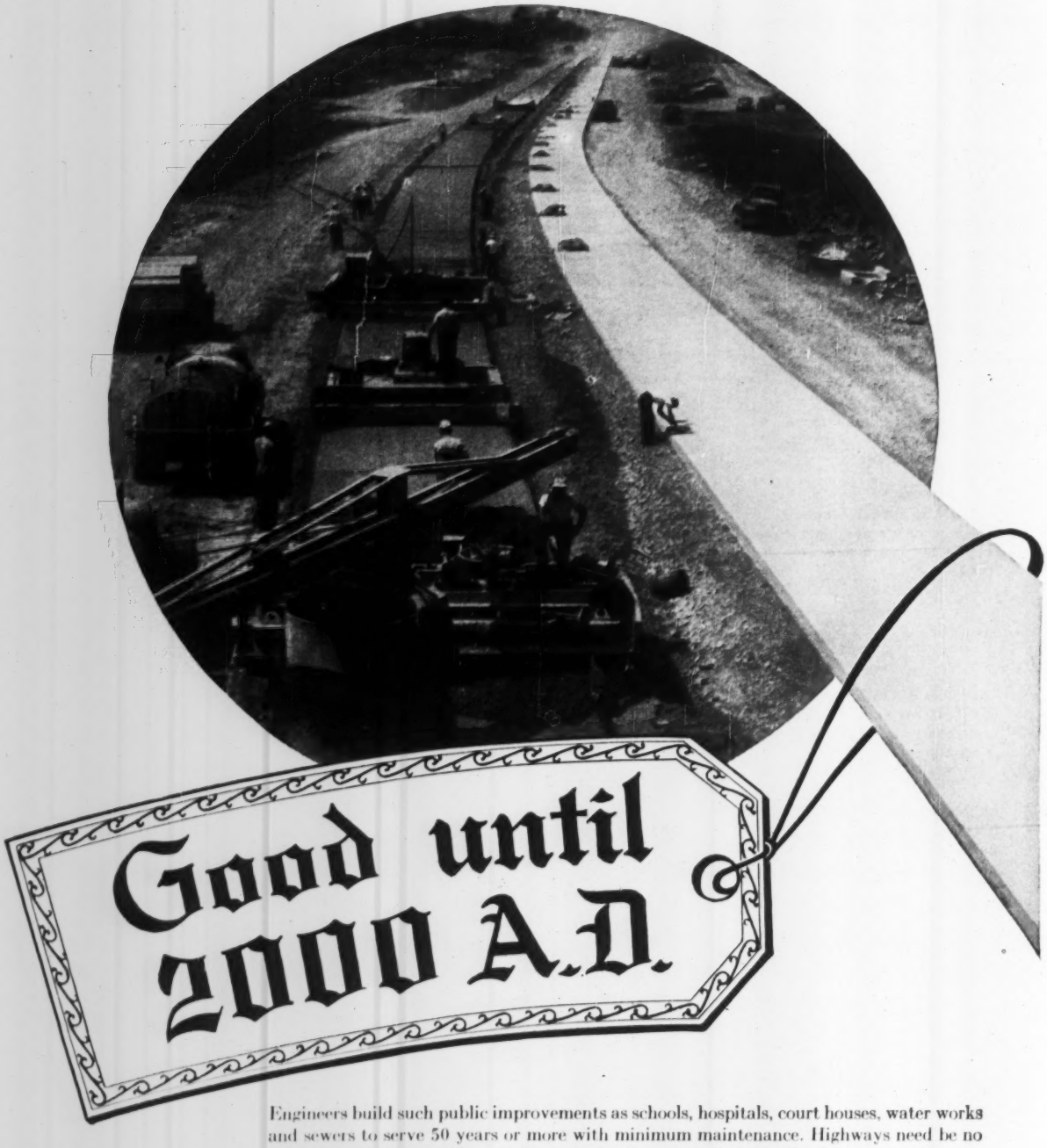

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▲ **Calif., San Francisco**—AIRPORT FACILITIES—City and San Francisco Co., Dpt. P. Utilities, City Hall, airport facilities addn., San Francisco International Airport, $6,500,000. Bond election in June. CD 4/17/52.

Mich., Kalamazoo—AIRPORT—State, Dpt. Aeronautics Capitol City Airport, Lansing, airport imprvs. incl. terminal bldg., land development, driveways, parking, taxiway constr. $169,000. L. C. Andrews, ch. engr.

† **N. J., Wrightstown**—DORMITORY—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., plans by W. W. Slocum, engr.-archt., 1 Clinton St., Newark, airmen's dormitory, McGuire Air Force Base, $500,000. CD 9/2.

▲ **Okla., Oklahoma City**—AIRPORT—City, City Hall, defeated bonds Dec. 13, municipal airport expans. $4,300,000. W. W. Baker, city engr. CD 11/7.

PUBLIC BUILDINGS

Ala., Mobile—SCHOOL OF NURSING—City, City Hall, school of nursing at Mobile Infirmary, $750,000.

Calif., Burlingame—REHABILITATION CENTER—County of San Mateo Crippled Children & Adults Society, c/o Ellis Jacobs, archt., 437 Cambridge Ave., Palo Alto, rehabilitation center for crippled children and adults. $428,000.

▲ **Calif., Daly City**—SCHOOLS—Jefferson Elementary School Dist., 344 Santa Barbara Ave., Daly City, bond election Feb. 28, Vista Grande, Vista Del Mar and Palisades Schools, $2,500,000.

Calif., Danville—SCHOOL—Danville Union Elementary School Dist., P. O. Box 236, Danville, voted $500,000 bonds, school and existing schools addns. $500,000.

Calif., Elk Grove—SCHOOL ADDNS. etc.—Elk Grove Union High School Dist., c/o Supt., Elk Grove, bond election February 3, school addns., facilities. $390,000.

▲ **Calif., Lafayette**—SCHOOL ADDNS.—Lafayette Elementary School Dist., P. O. Box 817, $970,000 bond election March 6, school addns. $2,000,000. CD 6/10/53.

▲ **Calif., Ontario**—COLLEGE—Chaffey Union High School Dist., 4 and Euclid Sts., $3,000,000 bond election February 17, schools. CD 6/1.

▲† **Calif., Palo Alto** — HOSPITAL — Veterans Admin., Munitions Bldg., Wash. D. C., plans by Welton Becket, 5657 Wilshire Blvd., Los Angeles, veterans administration hospital, 90-acre site. $20,000,000.

Calif., San Diego—SCHOOL—San Diego Unified School Dist., 4100 Normal St., plans by Wulff & Fifield, 1422 6 St., San Diego, 1 story 21,000 sq. ft. John Marshall School $500,000. CD 5/1/53.

Calif., Westminster—SCHOOL—Westminster Elementary School Dist., Westminster, plans by Morgan & Adams, archts.-consult. engrs., Farmers & Merchants Bldg., Long Beach, 35,000 sq. ft. Ray M. Schmitt School, Trask Ave. $750,000.

▲ **Colo., Boulder**—CHEMISTRY BLDG.—University of Colorado, Boulder, L-shaped, 1 story chemistry bldg. addn. $1,400,000.

Colo., Loveland—HIGH SCHOOL—Bd. Educ., School Dist. No. 2, Loveland, voted bonds Dec. 15, junior high school. $650,000. Walter H. Simon, 1922 E. 18th Ave., Denver, consult. engr.-archt. CD 11/25.

Conn., Montville—SCHOOL—Town, Bd. Educ., Edward W. Rive, Chmn., Montville, School, Mohigan Hill School Site. $350,000.

Conn., Westport—SCHOOL—Town, School Bldg. Comn., Town Hall, plans by Warren H. Ashley Assoc., 967 Farmington Ave., West Hartford, elementary school, Long Lots Rd., $450,000.

Del., Marshalltown—SCHOOLS—Marshalltown School Dist., Marshalltown, voted $870,000 bonds, schools.

Del., Townsend—SCHOOL—Townsend School Bldg., Townsend School addn., $344,000.

▲ **Del., Wilmington**—SCHOOLS—Mount Pleasant Special School Dist., Phila. Pike, Wilmington, voted $1,279,200 bonds, schools.

▲ **Del., Wilmington**—SCHOOLS—Alfred I. Dupont Special School Dist., 3606 Concord Pike, voted $2,400,000 bonds Dec. 10, schools. CD 11/2.

Ga., Atlanta—COURT HOUSE—Bd. Comrs. Fulton Co., Court House, courthouse remodeling $400,000.

▲ **Idaho, Boise**—AUDITORIUM—Ada Co., Court House, plans by Nat Adams and Frank Hummel, 1324 Idaho St., Boise, civic auditorium, $1,500,000.

▲ **Ill., Calumet City**—HOSPITAL—City, 2 story hospital. $1,000,000.

Ill., Mount Prospect—SCHOOL ADDN.—School District 57, 3 N. Main St., Fairview Grade School addn. and new Lyons Grade School $390,000. Wm. F. McCaughey, 3 S. Prospect Rd., Park Ridge, consult. engr.

Ill., Rosiclare—HOSPITAL—Hardin Co. Bd. Co. Supervs., Court House, Elizabethtown, hospital $492,000.

Ill., Summit—SCHOOL—School Dist. 104 63 St. and 74 Ave., plans by Burnham & Hammond, 53 W. Jackson St., Chicago, Zone 4, Crave Elementary School $360,000.

▲ **Ind., Hobart**—HIGH SCHOOL—Hobart School Bldg. Corp., 610 Kelly St., plans by Schutt-Haley Assocs., 510 Jefferson St., Gary, high school and gymnasium, $1,300,000.

Ind., Mishawaka—SCHOOLS—School City of Mishawaka, 126 N. Church St., plans by Maurer & Maurer, Lafayette Bldg., South Bend, South Side Elementary and Junior High School. $750,000.

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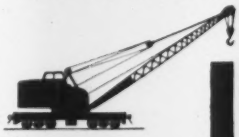

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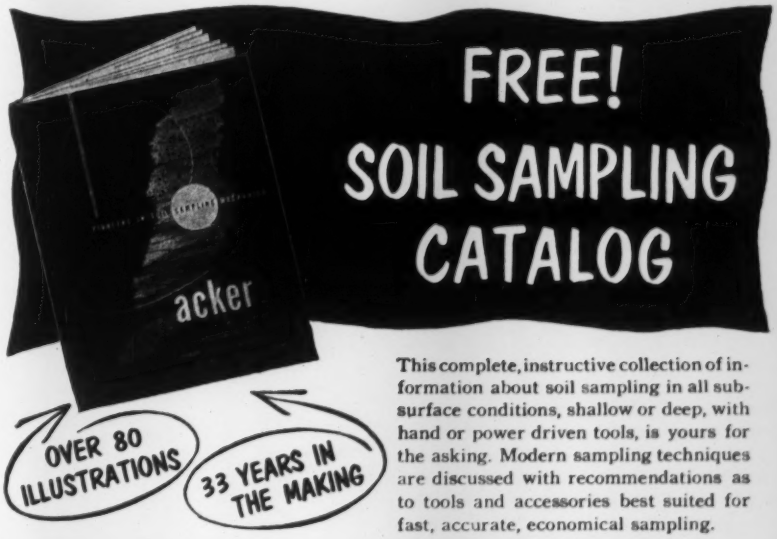

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Iowa, Walcott—SCHOOL—Community School Dist., Walcott, elementary and junior high school. $350,000. $294,000 bond election planned.

Iowa, Stratford—SCHOOL—Bd. Directors, voted $397,000 bonds Nov. 30, school addn.

Iowa, Sutherland—SCHOOL—Bd. Educ., voted $350,000 bonds Dec. 15, high school.

Iowa, Williamsburg—SCHOOL—Bd. Educ., voted $638,000 bonds Dec. 15, grade school, grade school addn.

Kan., Salina—SCHOOL—Bd. Educ. plans by Chas. W. & John A. Shaver, 205½ S. Santa Fe St., Salina, Junior High School, $600,000, Wilson & Co., 705 E. Crawford St., Wichita, consult. engrs.

Ky., Maysville—SCHOOL—City, plans by Brock & Johnson, 159 Barr St., Lexington, school, $400,000. CD 10/24.

▲ **La., Tallulah**—SCHOOL—Madison Parish School Bd., $1,800,000 bond election Jan. 25, school.

Mich., Garden City—SCHOOLS—City, Douglas Waddell, clk., plans by W. T. Anicka & Assoc., 2300 Washtenaw St., Ann Arbor, Burger Junior High School addn., $350,000; South Junior High School addn., $350,000.

Md., Towson—SCHOOL—Baltimore Co., Bd. Educ., Aigburth Rd., plans by Fisher, Nes & Campbell & Assoc., 1020 St. Paul St., Baltimore, Zone 2, Parkville Senior High School, Parkville, $900,000.

Mass., Amherst—CLASSROOM BLDG.—State, University of Mass., c/o div. Bldg. Constr., 38 Chauncy St., Boston, plans by Albert M. Kreider, 259 Walnut St., Newton, U-805 classroom bldg., State University, $500,000.

▲ **Mass., Brockton**—SCHOOLS—City, Edwin A. Nelson, supt. schools, c/o Mayor's Office, City Hall, plans by J. Williams Beal Sons, 185 Devonshire St., Boston, East Junior High School off Cary St., $1,500,000; plans by Edmund I. Leeds & Assoc. Inc., 153 Brighton Ave., Brighton, North junior high school, $1,500,000. CD 6/2/55.

Mich., Zeeland—SCHOOL—City, Bd. Educ., junior high school, $590,000.

▲ **Minn., Austin**—SCHOOL—Bd. Educ., Independent School Dist. No. 27, S. L. Coumbe, clk., plans by Hammel & Green, 1932½ University Ave., St. Paul, junior high school, $2,000,000; elementary school $600,000. CD 12/20/51.

▲ **Minn., Edina (P. O. Minneapolis)**—SCHOOL—Bd. Educ., Edina-Morningside Dist. No. 17, M. H. Kunkman, supt. of schools, elementary school east of Dorcaster Way and north of Hy. 169, $1,000,000. CD 1/6/54.

Minn., Hawley—SCHOOL—Bd. Educ., A. Anderson, clk., voted $400,000 bonds Dec. 13, 2½ story school addn., alterations, $375,000. Foss & Co., Moorhead, archts. CD 12/14.

▲ **Minn., Minneapolis**—HOUSING—Minneapolis Housing & Redevelopment Auth., Metropolitan Bldg., plans by Armstrong & Schlichting, 2722 Park Ave., low-rent housing proj. in Glenwood Redevelopment area, Section 2, south of Olson Hy. in Fremont-Girard Ave. area, $1,500,000. Revised plans. CD 6/22.

▲ **Minn., Minneapolis**—DORMITORY—Regents of the University of Minnesota, 404 Admin. Bldg., Main Campus, men's dormitory, $2,500,000; Comstock Hall addn., women's dormitory, $900,000-$1,000,000.

Minn., Mountain Lake—SCHOOL—Bd. Educ., J. F. Eitzen, clk., plans by Pass, Rockey, Church & Towers, Mankato, elementary school, $525,000; gymnasium-auditorium addn. to high school, $350,000.

Mo., North Kansas City—SCHOOL—Bd. Educ., 23 and Gentry Sts., plans by E. M. Fuller, 701 E. 14 Ave., Kansas City, Mo., Briar Elementary School, $375,000. CD 5/24/54.

Mo., Sedalia—HOMES—City, Bothwell Memorial Hospital, Sedalia, voted $300,000 bonds Nov. 29, hospital addn., $600,000, Hewitt & Royer, 7449 Broadway, Kansas City, Mo., archts. CD 11/3.

Neb., Gering—SCHOOL—Bd. Educ., Gering, voted $379,400 bonds Dec. 13, school. $379,400. CD 2/1.

Neb., Holdrege—HIGH SCHOOL—Bd. Educ., Holdrege, defeated $800,000 bonds Dec. 13, high school. $800,000. J. W. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., archt. CD 11/25.

▲ **N. J., Pequannock**—HIGH SCHOOL—Bd. Educ., Pequannock, plans by LaPierre, Litchfield & Partners, 292 Madison Ave., New York 17, N. Y. high school on Sunset Rd. $1,000,000.

† **New York**—HOUSING—U. S. Eng., 111 E. 16 St., New York, Zone 3, plans by Turano-Gardner Assoc., 35 W. 53 St., New York, Zone 19, housing AC & W sites, New York and Niaraga, area, $500,000-$1,000,000.

▲ **N. Y., Brooklyn**—HOUSING—New York City Housing Auth., 299 Broadway, New York, Zone 7, Middle Income Housing Proj. seventeen 7 story bldgs., 1,500 units, 29 acre tract on site of former Luna Park, $23,000,000.

▲ **N. Y., Harrison**—SCHOOL—Bd. Educ. voted $2,000,000 bonds Dec. 12, school, addns. to existing schools.

Okla., Edmond—SCHOOL—Bd. Educ., Edmond, voted bonds Dec. 12, high school. $512,000. Hudgins, Thompson & Ball, 1411 Classen St., Oklahoma City, archts.

▲ **N. Y., Oneida**—SCHOOL—City, plans by King & King, Marine Midland Bldg., Syracuse, high school, $2,000,000. Bids in the Winter of 1956. CD 6/13/47.

N. Y., Syracuse—SCHOOL—City, 409 W. Genesee St., plans by Pederson & Hueber, Syracuse-Kemper Bldg., 1 story elementary school Kimber Rd., $450,000. Bids in Jan.

▲ **N. C., Raleigh**—HOSPITAL—Bd. Comrs. Wake Co., Court House, voted bonds Dec. 13, 300-bed general hospital. $5,000,000. CD 11/15.

▲ **O., Massillon**—SCHOOL—Perrysburg Twp. Bd. Educ., Massillon, defeated $1,140,000 bond election Dec. 13, high school addn., school. CD 9/21.

▲ **Okla., Muskogee**—HOSPITAL—City, voted bonds Dec. 13, municipal hospital. $1,383,000. Fred Zaroor, Manhattan Bldg., archt. CD 11/21.

Okla., Tulsa—FARMERS MARKET—Farmers Market Corp., 1526 E. 19 St., farmers market and product center, 71 St. and Lewis Ave. $600,000. John R. Herr, 1526 E. 19 St., consult. engr. Will build in 1956.

Pa., Ambler—SCHOOL—Ambler Joint Junior High School, plans by Buchart Engineering Co., 611 Market St., York, Shady Grove Junior High School, $750,000. CD 11/5/54.

Pa., Erie—WAREHOUSE—General State Auth., 18 and Herr Sts., Harrisburg, warehouse for Pennsylvania Liquor Control Bd., $300,000 A. F. Jones ch. engr.

▲ **Pa., Phila.**—WAREHOUSE—General State Auth., 18 and Herr Sts., warehouse for the Pennsylvania Liquor Control Bd., $2,000,000. A. F. Jones, ch. engr.

▲ **Pa., Pittsburgh**—WAREHOUSE—General State Auth., 18 and Herr Sts., Harrisburg, warehouse for the Pennsylvania Liquor Control Bd., $1,500,000. A. F. Jones, ch. engr.

Pa., Scranton—WAREHOUSE—General State Auth., 18 and Herr Sts., Harrisburg, warehouse for Pennsylvania Liquor Control Bd., $300,000, A. F. Jones, ch. engr.

R. I., Cranston—SCHOOL—City, School Comn., Park Ave. plans by Milton MacIntosh, 761 Park Ave., 1 story brick, block school. $400,000. CD 3/17/49.

S. C., Charleston—COURT HOUSE—Charleston Co., H. A. Sears, county mgr., The Center, Charleston, county court house, $400,000.

▲ **Tex., Benavides**—Benavides Independent School Dist., Benavides, upper grade school, $700,000; lower grade school, $500,000.

▲ **Wash., Redmond**—SCHOOLS—School District 414, Kirkland, plans by Mallis & DeHart, Lyon Bldg., Seattle, Zone 4, Junior High School $720,000; remodeling existing school for elementary school $433,650.

Wash., Washougal—HIGH SCHOOL—School Dist. 112, Washougal, bond election Jan. 18, high school. $750,000. Freeman, Hayslip, Tuft & Hewlett, Postal Bldg., Portland, Ore., archts. CD 11/23/54.

Wis., Barron—HIGH SCHOOL—Bd. of Educ., Barron, high school $700,000.

Wis., Madison—STERLING HALL ADDN.—University of Wisconsin, Madison, plans by Roger C. Kirchhoff, state archt., 4-story Sterling Hall addn. $800,000.

Wis., Whitewater—SCHOOL—Bd. of Educ., Whitewater, high school $700,000.

▲ **Wyo., Casper**—HIGH SCHOOL—Natrona County School Dist. 2, Natrona County High School Dist., Casper $2,000,000 bond election January 31, junior high school. $1,000,000. CD 11/16/53.

Wyo., Evanston—THERAPY AND INFIRMARY—State, State Capitol Bldg., Cheyenne, plans by Kellogg & Kellogg, engrs.-archts., 1909 Carey Ave., Cheyenne, 2 story infirmary and 1 story recreational therapy, $600,000.

▲ **B. C., Vancouver**—FORESTRY RESEARCH—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by E. A. Gardner, c/o owner, forestry research bldg. on University of B. C. Campus, facing Marine Dr., $1,000,000.

▲ **Man. Brandon**—HOSPITAL—Brandon General Hospital Board, hospital renovation and exten. to main bldg., $1,454,000.

Ont., London—HIGH SCHOOL—East Middlesex High School Bd., Ernest Caverhill, Chmn., R. R. 1, Ilderton, plans by Riddle & Connor, 424 Wellington St., London, high school addn., London Twp. $500,000.

Ont., Port Credit—HOSPITAL—South Peel Hospital Board, Port Credit, plans by Chester C. Woods, 2842 Bloor St. W., Toronto, 125-bed hospital $800,000.

Ont., Toronto—SCHOOL—Bd. Educ., 155 College St., plans by S. B. Coon & Son, 745 Mount Pleasant Rd., Essex Senior Public School. $475,000. CD 12/15/43.

COMMERCIAL BUILDINGS

▲ **Ala., Birmingham**—HOSPITAL ANNEX, etc.—Children's Hospital, Inc., 712 S. 30 St., hospital annex, $1,000,000; nurses home, $390,000.

Ala., Florence—HOSPITAL ANNEX—Eliza Coffee Memorial Hospital, W. Alabama St., Florence, hospital annex, $750,000. CD 9/21/51.

Ala., Jasper—HOSPITAL—Peoples Hospital, Jasper, hospital annex, $750,000.

Ala., Mobile—NURSING SCHOOL—Providence Hospital, 1504 Springhill Ave., nursing school. $442,000.

Ala., Mountain Brook—COMMUNITY CENTER, etc.—Birmingham Jewish Community Center, Inc., Old Atlanta Hy., Birmingham, plans by Leon Spector, 145 E. 32 St., New York, N. Y., consultant, Jewish Community Center, swimming pools, playgrounds, $800,000-$900,000.

Ala., Selma—HOSPITAL ANNEX—Vaughn Memorial Hospital, Selma, hospital annex, $750,000.

Calif., Concord—STORE—J. C. Penny Co. Inc., 100 Bush St., San Francisco, plans by John S. Bailis, Pier 5, San Francisco, 2 story 53,000 sq. ft. department store. $950,000.

Calif., Pinole—HOMES—Tara Hills Corp., 2499 Brian Rd., San Pablo, 44 homes. $444,000.

Calif., Pinole—HOMES—Philip Heraty, 3625 MacArthur Blvd., Oakland, 400 homes. $400,000-$500,000.

▲ **Calif., Richmond**—HOMES—Whitecliff Homes Co., 73 N. Whisman Rd., Mt. View, 1,000 homes. $10,000,000.

▲ **Calif., San Diego**—DWELLINGS—Euclid Mesa Co., 6610 El Cajon Blvd., plans by Western Drafting Co., 494 Newport Blvd., Newport Beach, 105 frame, stucco dwellings. $1,000,000.

Calif., San Francisco—OLD PEOPLES HOME—Ladies Protective & Relief Society, 3400 Laguna St., San Francisco, plans by Warren C. Perry, 260 California St., San Francisco, 3-story wing and bsmt., rein.-con. Old People's Home, $500,000. Thomas F. Chace, 268 Market St., San Francisco, consult. engr.

▲ **Calif., Santa Rosa**—HOMES—The Ward Investment Co., 765 El Camino Real, Palo Alto, 1,100 homes, 540-acre site, commercial development, 14-acre site. $20,000,000.

▲ **Calif., Ukiah**—HOMES, etc.—Donald L. Faull Constr. Co., 1236 Cleveland Ave., Santa Rosa, 50-60 homes, shopping center, commercial area. $8,000,000.

▲ **Conn., Hartford**—OFFICE—Elmo Corp., c/o A. J. Macchi, consult. engr., 57 Farmington Ave., plans by Pederson & Tilney, 111 Whitney Ave., New Haven, 6 story, 60,000 sq. ft. commercial office, 1057 Asylum Ave., $1,200,000.

Conn., Norwalk—TEMPLE—Temple Israel Bd. Trustees & Bldg. Comn., 17 West Ave. South, plans by Percival Goodman, 40 E. 49 St., New York, N. Y., temple, town line just off Post Rd. $350,000.

Conn., Plainville—SHOPPING CENTER—Owner, c/o Walter J. Douglas Assoc., archts., 1005 Farmington Ave. West Hartford, shopping center. $345,000.

Conn., Rocky Hill—HOUSING—Lester R. Segal & Morton M. Mitnick, 4 Morton Lane, West Hartford, 48-unit housing project, roadway, storm and sanitary sewers, Gilbert Ave., $750,000.

Conn., Windsor—SHOPPING CENTER—Joseph Vetrano, agent., Bristol, shopping center, two roadways, Windsor Ave., $750,000.

▲ **D. C., Wash.**—HEADQUARTERS—Bakery & Confectionary Workers International Union of America, 1145 19 S. N. W., plans by Holabird & Root & Burgee, 180 N. Wabash St., Chicago, Ill., 8 story, national headquarters, 16 and K St. N. W. $3,000,000.

▲ **Fla., Brooksville**—INSTITUTE—American Federation of The Physically Handicapped, Inc., National Press Bldg., Wash., D. C., Institute for Human Engineering, $3,500,000.

Fla., Orlando—STORE, OFFICE—Byron H. King, c/o Orange Buick Co., 330 N. Orange Ave., 15 story 236 sq. ft. store and office bldg., corner N. Orange Ave. and W. Robinson Ave. $500,000.

Ga., Atlanta—HOME FOR OLD WOMEN—Southern Baptist Convention, 291 Peachtree St. N. E., Home for Old Women, $500,000.

▲ **Ill., Crystal Lake**—SHOPPING CENTER—R. B. Colby, 45 Grant St., plans by Wm. Cooley, 532 Busseway Park Ridge, shopping center, $1,500,000.

Ill., Elmhurst—Y.M.C.A.—Young Mens Christian Assoc. (Chicago), 19 S. LaSalle St., Chicago, 1 and 2 story, Y.M.C.A. budg.-gymnasium, $700,000.

▲ **Ill., Skokie**—MEDICAL SCHOOL—Loyala University, Carpenter Rd., plans by Childs & Smith, 20 N. Wacker Dr., Chicago, Zone 20, Stritch School of Medicine. $7,000,000. Site changed. CD 9/27/51.

Ind., Anderson—HOSPITAL WING—St. John's Hickey Memorial Hospital Assn., Sister M. Petronilla, Administrator, Anderson, plans by R. R. Gauger & Co., 421-2 First Federal Bldg., St. Paul, Minn., rebuild 2 story "Hickey House" wing, $344,000.

Ind., Indianapolis—HOSPITAL—Dr. Joseph E. Walther, 3202 N. Meridian St., Indianapolis, hospital $600,000.

Ind., Lafayette—SHOPPING CENTER—Vinton Homes, Inc. Lafayette, shopping center on 30 acre tract, $500,000. To go ahead in 1956.

Me., Brunswick—SHOPPING CENTER—Merry Meeting Acres Development Co., Brunswick, plans by Alonzo J. Harriman, Inc., 292 Court St., Auburn, shopping center incl. 24 stores, 20 offices, etc., Rte. 1, $350,000. Bids probably in Jan.

Mass., Arlington—SCHOOL—St. Agnes R. C. Church, c/o Archdiocese of Boston, 1 Lake St., Brighton, parochial high school, athletic field, $450,000.

Mass., Ware—SCHOOL—Our Lady of Mt. Carmel Parish, Rev. J. L. Brodeur, pastor, R. C. Diocese of Springfield, 62 Elliot St., Springfield, plans by Theodore J. J. Brodeur, 770 Main St., Worcester, parochial school, $350,000.

Mass., Worcester—CHURCH—St. Charles Borremeo Parish, R. C. Diocese of Worcester, Chancery Office, 1 Tuckerman St., plans by John Guarino, 2 Lexington St., East Boston, 72x118 ft. church, 2 story 34x78 ft. rectory, garage, $350,000.

Minn., Minneapolis—COMMERCIAL—Signal Hills Co., L. J. Asfeld, pres., 403 S. Robert St., St. Paul, plans by J. C. Niemeyer, 1075 Lombard Ave., St. Paul, redevelopment of commercial district incl. junior department store, shop, hardware and drug stores, etc., $600,000, To go ahead in 1956.

▲ **Mo., St. Louis**—COLLEGE BLDGS.—St. Louis University, Very Rev. Paul C. Reinert, S. J., pres., 221 N. Grand Blvd., Zone 3,
medical and students dormitory, $1,200,000;
dormitory for student priests, $800,000;

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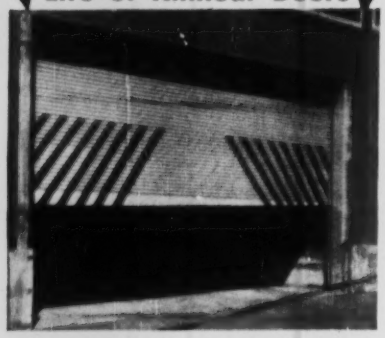

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medical school library and auditorum, $800,000;
Parks College educational bldg., $1,000,000;
student union bldg., $1,000,000;
auditorium, $800,000;
physics bldg., $800,000;
law bldg., $1,500,000;
administration bldg., $1,000,000;
addn. to Commerce & Finance School, $800,000;
Adult Education and Community Center, $1,000,000;
School of Social Service bldg., $800,000;
field house, $2,000,000;
constr. of and equip. for central heating plant, $650,000. CD 8/20/54.

▲ **Mo., St. Louis**—OFFICE—Development Corp. formed c/o Teamsters Joint Council No. 13, Harold J. Gibbons, Pres., 1127 Pine St., Zone 1, headquarter office for 20 AFL-CIO teamsters local unions and Labor Health Institute, $1,000,000.

N. H., Hanover—DORMITORY—Trustees of Dartmouth College, John Sloan Dickey, pres., Hanover, plans by Campbell & Aldrich, 38 Newbury St., Boston, Mass., 230-student dormitory. $400,000.

N. J., Bloomfield—CHURCH—St. Thomas the Apostle Church, Byrd Ave., plans by Anthony J. DePace, 151 W. 46 St., New York 19, N. Y., church, Byrd Ave. $600,000.

▲ **N. J., New Brunswick**—HOSPITAL—Middlesex General Hospital, 180 Somerset St., plans by Ferrenz & Taylor, 152 W. 42 St., New York, 36, N. Y., hospital addn. $2,000,000.

▲ **N. J., Princeton**—APARTMENT—L. H. Cahan & Co., Inc., 140 W. State St., Trenton, garden type apartment development Nassau St., incl. garage, swimming pool, $1,250,000.

N. Y., Brooklyn—APARTMENT—83rd Street Building Corp., 3036 Ave. U, Brooklyn, plans by Joseph Riggio, 161-19 Jamaica Ave., Jamaica, 6 story apartment, 1869-83 St. $700,000.

N. Y., Flushing—SCHOOL—St. Andrew of Avelino Church, 35-60 150 St., Flushing, plans by Eggers & Higgins, 100 E. 42 St., New York, school addn., convent, $400,000.

▲ **N. Y., Latham Corners**—SHOPPING CENTER—Latham Enterprises, Inc., 111 S. Main Ave., Albany, plans by Howard T. Fisher & Assoc., 270 Park Ave., New York, Zone 17, shopping center incl. 50 stores, parking lot at intersection of US Rte. 9 and N. Y. S. Rte. 7 at Latham Circle, $5,000,000. Eipel Engr. Co., 101 Park Ave., New York, Zone 17, consult. engrs., Bids in Spring of 1956.

▲ **N. Y., New York**—HOUSING—Rockefeller Institute for Medical Research, Sloan-Kettering Institute and Memorial Center for Cancer & Allied Diseases, York Ave. and 66 St., plans by Harrison & Abramovitz, 630 Fifth Ave., Zone 20, middle income housing, 256 units, one 15 story bldg., one 16 story bldg. on site bounded by First Ave., York Ave., E. 66 St. and E. 67 St., $5,205,000. CD 12/13.

N. Y., New York—APARTMENT—Maurice Epstein, 9 E. 40 St., Zone 17, plans by Irvin J. Berger, 9 E. 40 St., Zone 17, apartment, 304-310 Lexington Ave., south of 38 St., $600,000.

▲ **N. Y., New York**—APARTMENT—Maurice Epstein, 9 E. 40 St., Zone 17, plans by Irving J. Berger, 9 E. 40 St., Zone 17, 16 story apartment, 745-749 Madison Ave. and 32-38 E. 65 St., $1,500,000.

▲ **N. Y., Syracuse**—DORMITORY—Syracuse University, Syracuse, plans by King & King, Marine Midland Bldg., 8 story women's dormitory, $2,000,000. Bids in Sept. 1956.

N. Y., Syracuse—CHURCH—St. Anne's R. C. Church, c/o Pederson & Hueber, archts., Syracuse-Kemper Bldg., church and rectory, $400,000. Bids soon.

▲ **N. Y., Valley Stream**—HOSPITAL—Southshore General Hospital, c/o Frederic P. Wiedersum Associates, archts., 85 W. Hawthorne Ave., Valley Stream, 150-bed hospital, Payan Ave. and Merrick Rd., $2,500,000.

N. Y., Syracuse—SCHOOL—Sacred Heart R. C. Church, 927 Park Ave., plans by Pederson & Hueber, Syracuse Kemper Bldg., high school addn., $350,000.

N. Y., Syracuse—CHURCH—St. Vincent de Paul R. C. Church, Vine St., plans by Pederson & Hueber, Syracuse Kemper Bldg., rebuild church, $500,000-$600,000.

▲ **O., Akron**—OFFICE—Burkhardt Consolidated Co., 80 W. Bowery St., plans by Wagner & Luxmore, Permanent Bldg. office addn., 80 W. Bower Bldg. $1,250,000. Construction in January 1956.

▲ **O., Cincinnati**—SHOPPING CENTER—The John Shillito Co., 7th Race and Shillito Pl., 500,000 sq. ft. shopping center and parking for 7,500 autos, northeast corner of Princeton and Kemper Rds. Est. $24,000,000. CD 8/4, under Tri-County Center, Inc.

O., Lima—HOSPITAL—Bd. Trustees, Memorial Hospital, Lima, hospital expans. incl. new wing and 4-story school of nursing addn. $500,000. Bids in January 1956.

▲ **O., Mayfield Heights**—HOMES—Zehman-Wolf & Sherman Const. Co., 13424 Cedar Rd., Cleveland, Zone 18, 240 Homes, Lander Garden Estates on east side Lander Rd. between Cedar and Mayfield Rds. $6,000,000. Build next spring.

O., South Euclid—CHURCH—Methodist Church of South Euclid, 1534 Green Rd., Zone 21, plans by Damon, Worley, Samuels & Assocs., Engineers Bldg., Cleveland, Zone 14, church, 4½ acre site. $600,000. Bids about March 1st.

Pa., Chester—SCHOOL—St. Robert's R. C. Church, 20 and Providence Sts., plans by Gleeson & Mulrooney, Fox Bldg., Phila., school chapel, rectory, $500,000, Charles G. Wolf, 112 S. 16 St., Phila., consult. engr.

▲ **Pa., Phila.**—RESIDENTIAL DEVELOPMENT—Owner, c/o Louis J. Cowan, archt., 1505 Pine St., residential development, 300 units, Pine and Welsh Rds., $4,500,000.

R. I., Providence—WAREHOUSE—S. W. & S. L. Poorvu, 201 Branch Ave., 1 story 140x272 ft. cinder block, brick veneer warehouse. $350,000.

R. I., Smithfield—HOUSES—Anthony Matrumalo, 25 Brown Ave., North Providence, 60 houses, Angel Rd. $720,000.

R. I., Westerly—SCHOOL—Immaculate Conception R. C. Church, Rev. Chanel Violette, S. M., pastor, High St., plans by Joseph M. Mosher & Son, Inc., 77 Washington St., Providence, parochial school. $500,000. CD 1/9/50.

Tenn., Sewanee—CHAPEL—University of the South, Sewanee, completion of chapel. $750,000. CD 2/26/47.

Tex., Houston—DWELLINGS—Bruce Belin, Jr. and James Mallette, 4624 Merwin St., 30 dwellings in Third Sect. San Jacinto Oaks. $345,000.

Tex., Houston—CLUB HOUSE—William M. Wheeless & Assocs., c/o J. Victor Neuhaus, archt., 1728 Bissonnet St., club house, golf course, boat docks, dining area at Lake Houston "Atascocita Country Club" $500,000.

▲ **Tex., San Antonio**—HOSPITAL—Baptist Memorial Hospital, 111 Dallas St., hospital addn. $6,750,000.

▲ **Wash., Bellevue**—HOSPITAL—Sisters of St. Joseph of Newar, 1655 Killarney Way, Seattle, plans by J. W. Maloney, Central Bldg., Seattle, Zone 4, 5 story rein.-con. hospital, Overlake Park Development, $6,000,000. CD 12/13.

▲ **Wash., Yakima**—DIAL EQUIPMENT—Pacific Telephone & Telegraph Co., 3 Ave. and Seneca St., Seattle, Zone 1, dial equipment bldg., $1,000,000. Work to begin in 1956.

Wis., Whitewater—CHURCH, etc.—St. Patrick's Catholic Congregation, Whitewater, plans by E. Brielmaier & Sons Co., 735 N. Water St., Milwaukee, Zone 2, church, rectory and hall, $350,000.

Man., Winnipeg—OFFICE—Powell Equipment Co., c/o Moody & Moore, archts., 295 Broadway Ave., Winnipeg, office, McGillivrary Blvd. $350,000.

Ont., Riverside—HOMES—J. Krogh & Son, 32 Isabel Place, 38 homes incl. roads, water, sanitary and storm sewers, Parkview Ave., $500,000.

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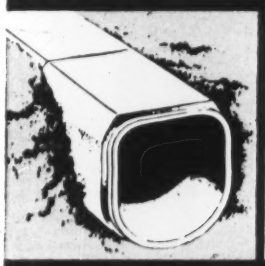

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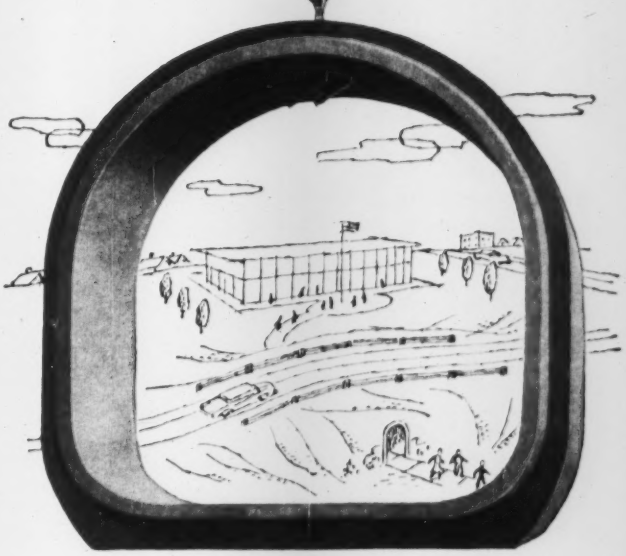

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330 W 42 St, New York 36, N. Y.

▲ **Ont., Toronto**—OFFICE—Owner, c/o Walter Zwig, 26 Queen St. E., plans by Page & Steele, 72 St. Clair Ave. W., 13 story, 88x158 ft., rein.-con. office, Yonge and Colbourne Sts. $2,000,000.

▲ **Que., Limbour**—COLLEGE—The Eudistes Fathers Congregation, Limbour, plans by A. Martineau, 200 Bay St., Ottawa, Ont., college, $1,500,000.

▲ **Que., Montreal**—OFFICE—Owner, c/o Kensington Industries Inc., 1224 St. Catherine St. W., Montreal, 12 story, 20,000 sq. ft. office, corner of Dorchester and Guy Sts., $3,000,000. Work in 1959.

Que., Quebec City—SEMINARY—Peres du St. Sacrement, Ste. Foye Rd., Quebec City, seminary. $600,000.

INDUSTRIAL BUILDINGS

Ala., Guntersville—PLANT—Marshall Limestone Products Co., Guntersville, plant, $125,000.

▲ **Calif., Santa Clara**—PAPER MILL—Calif. Container Corp., 2500 De La Cruz Blvd., plans by Albert C. Martin & Assoc., archt.-consult. engrs., 333 Beaudry St., Los Angeles, paper mill. $6,300,000.

Conn., Bloomfield—SUB-STATION—Hartford Electric Light Co., 266 Pearl St., Hartford, electric substation, Simsbury Rd. $181,000.

▲ **Ill., Rockford**—PLANT—National Lock Co., 666 N. Lake Shore, Chicago, plans by Ragnar Benson, Inc., engr.-archt., 4744 W. Rice St., Chicago, plant $5,000,000. CD 12/22.

Ill., Springfield—PLANT—Sangamo Electric Co., 1301 N. 11 St., 4 story 30,000 sq. ft. plant administrative bldg. $500,000.

Ind., Bloomington—PLANT—Radio Corp. of America, Bloomington, warehouse for mfg. plant. $750,000.

▲ **Ind., Indianapolis**—PLANT UNIT—Indianapolis Power & Light Co., 17 Meridian St., Zone 6, South Harding St. Plant unit. $14,400,000.

▲ **Ind., Mishawaka**—FACTORY—Rockwell Spring & Axle Co., 843 4th Ave., Coraopolis, Pa., factory to mfg. bumpers, east of here. $11,000,000. Constr. to start in 1956.

▲ **Ky., Calvert City**—PLANT FACILITIES—Pittsburgh Metallurgical Co., Calvert City, expansion of present facilities incl. installation of two electric furnaces, $1,000,000. CD 7/30/48.

▲ **Minn., Golden Valley** (P.O. Minneapolis)—WAREHOUSE Minneapolis-Honeywell Regulator Co., 2753 Fourth Ave. S., Minneapolis, centralize warehouse, West of Douglas Dr. and North of Minneapolis, Northfield and Southern R.R. tracks, $1,000,000.

▲ **Minn., Grand Rapids**—GENERATING PLANT—Minnesota Power & Light Co., M. L. Hibbard, ch. of bd., 30 W. Superior St., Duluth, Clay-Boswell steam electric generating plant, containing 65,000 kw generating unit, 217 acre site near here, $12,000,000, H. Carpenter, ch. engr.

Minn., Hopkins—WAREHOUSE—Minneapolis Terminal Warehouse Co., 618 Washington Ave. N., Minneapolis, one 2 story 180x570 ft. and one 2 story, 180x480 ft. warehouse buildings $600,000.

Minn., Owatonna—PLANT—Owatonna Tool Co., Owatonna, plans by Magney, Tusler & Setter, 303 Roanoke Bldg., Minneapolis, plant addn., $300,000. Constr. in 1956; 2nd plant addn., $100,000. Constr. in 1957.

N. J., Salem—PLANT, OFFICE—Owner c/o T. J. Malone, archt., Westville, mfg. plant and office, $150,000.

N. Y., New York—GARAGE—Purim Corp., 4749 White St., Zone 13, project abandoned, 6 story parking and storage garage, 106-112 W. 46 St., $250,000. Morris Hannes, 116 Nassau St., Zone 7, archts. CD 10/17.

N. Y., Syracuse—GARAGE—Shoppers Garage, Inc., Malcom Sutton, pres., 400 S. Clinton St., 6 story open deck parking garage. $600,000. National Garages, Inc., 1009 Cass St., Detroit, Mich., designer. To go ahead after first of the year.

▲ **O., Bucyrus**—PLANT—Swan Rubber Co., Bucyrus, plant for expansion of garden, washing machine and automobile hose. $1,300,000. Construction in Spring.

▲ **O., Cincinnati**—PLANT—Briggs Mfg. Co., Buhl Bldg., Detroit 26, Mich., plant. $1,000,000.

▲ **O., Middletown**—PLANT—Armco Drainage & Metal Products, Inc., 5-261 General Motors Bldg., Detroit 2, Mich., 150,000 sq. ft. plant to mfr. prefabricated structures. $1,500,000.

O., Niles—PLANT—Blaw-Knox Co., 2042 Farmers Bank Bldg., Pittsburgh 20, Pa., Republic Steel Corp., 1405 Republic Bldg., Cleveland 1, O., Youngstown Sheet & Tube Co., Stambaugh Bldg., Youngstown, O., Jones & Laughlin Steel Corp., 3 Gateway Center, Pittsburgh, Pa., National Steel Corp., Grant Bldg., Pittsburgh, Pa., Pittsburgh Steel Co., 1646 Grant Bldg., Pittsburgh 30, Pa., Wheeling Steel Corp., Wheeling Steel Corp. Bldg., Wheeling, W. Va., and U. S. Steel Corp., 525 Wm. Penn Bldg., Pittsburgh 30, Pa. plan a pilot disposal plant to eliminate waste pickle liquor at Republic Steel Corps plant here. $500,000.

▲ **O., Stratton**—POWER PLANT—Ohio Edison Co., 47 N. Main St., Akron, power plant, two steam operated generator each producing 170,000 kw of electricity will be installed at the start. $62,000,000. Work to start next summer. CD 5/26/49.

▲ **Okla., Tulsa**—PLANT—W. C. Norris Mfg. Co., 10 N. Elwood St., industrial mfg. plant for gas supplies. Tulsa Industrial Dist. $1,000,000. Wm. L. Butler, c/o owner, engr. Will build spring of 1956. CD 5/19.

Pa., Petrolia—PLANT—Koppers Co., Inc., Chemical Div., Koppers Bldg., Pittsburgh, Zone 19, plant addns. to produce resorcinal, altering water supply. $100,000.

Pa., Phila.—WAREHOUSE—Owner, c/o Levy-Lynch & Co., 2301 Penna Ave., plans by Lewis J. Cowan, 1505 Pine St., warehouse, Osford Ave. and Doverlou St., $300,000.

▲ **Tex., Odessa**—PLANT—General Tire & Rubber Co., 1708 Englewood St., Akron 9, O., and the El Paso Natural Gas Co., Bassett Tower, El Paso, synthetic rubber plant. $30,000,000.

Wis., Jefferson—MILL ADDN.—Seifert Woolen Mills, Delavan, 2 story 36,000 sq. ft. woolen mill addn.

▲ **Wis., Milwaukee**—PLANT ADDN.—Square D Co., 4041 N. Richards St., 1 story 150,000 sq. ft. mfg. plant addn. $1,800,000.

B. C., Kitimat—BAKERY—Canadian Bakeries Ltd., c/o J. R. Baxter, archt., P. O. Box 791, Kitimat bakery, on Enterprise St. $300,000.

▲ **Sask, Regina**—PLANT—Hoesch Co. of West Germany, Dortmund, Germany, 132,000 sq. ft. mfg. plant, Est. $3,000,000. W. M. Armstrong & Partners, Ltd., Brent Bldg., Vancouver, B. C., consult. engrs. CD 9/23.

Que., St. Jerome—PLANT—Rolland Paper Co. Ltd., St. Jerome, 20,000 sq. ft. plant addn., $150,000. J. H. Kirby, ch. engr.

UNCLASSIFIED

† **Arizona**—SITE FACILITIES—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., M-site facilities, transmitter and receiver bldg., Tucson, Winslow, Kingman, Yumz, Ajo and Nogales, $985,000. Johannessen & Girand, Central & Washington Bldg., Phoenix, consult. engrs.

▲† **California**—AAA SITES—U. S. Eng., 751 S. Figueroa St., Los Angeles, Oat Mt. administration utilities, launcher facilities, anti-aircraft defense $1,500,000; administration utilities, launcher facilities, Great Dam anti-aircraft defense, $1,500,000; water supply at Mt. Gleason anti-aircraft defence facility under $100,000.

▲† **Calif., Imyokern**—ARMAMENT SYSTEM, etc.—Eleventh Naval Dist., San Diego, armament system, assem. facilities, $2,215,000. Bids about June 1956; chapel, Naval Ordnance Test Station, $320,000. Bids about Feb. 1956.

Colo., Aurora—SWIMMING POOL—City, City Hall, voted $400,000 bonds, swimming pool, recreational facilities. K. H. Larkin & Assoc., 19 E. Gregory Blvd., Kansas City, Mo., engrs.-archts. CD 9/23.

Conn., West Hartford—SWIMMING POOL—Cornerstone Club, 28 S. Main St., indoor-outdoor swimming pool and club house. $293,000. Henri B. VanZelm & Assocs., 1007 Farmington Ave., West Hartford, consult. engrs.

▲ **Ind., Gary**—CARPORTS—City, City Hall, plans by Beine, Hall & Curran, 607 Broadway, Gary, 4 story each TW carports. $1,140,000.

▲ **Louisiana, Mississippi and Alabama**—PIPE LINE—Plantation Pipe Line Co., 161 Spring St., Atlanta, Ga., 327 mi. pipe line from Baton Rouge, La. to Helena, Ala., $23,500,000. To go ahead in 1956. CD 7/25/50.

Mich., Saginaw—PARKING FACILITY—City, City Hall, plans by Frederick E. Wigen, 507 Wiechmann Bldg., tri-level parking facility, Baum and Federal Sts. $890,000. Bids about Mar. 21. CD 11/25.

N. J., Haddonfield—SWIMMING POOL—Wedgwood Swim Club, Inc., c/o Oren Thomas Architects, archts., Collingswood, swimming pool and bath house, $125,000.

† **New York**—AAA FACILITIES—U. S. Eng., 111 E. 16 St., New York, Zone 3, plans by Raymond & Rado, 101 Park Ave., New York, Zone 17, battalion headquarters AAA facilities, New York area, $100,000-$500,000.

† **N. Y., Blue Mountain**—LOW GAP FILLER—U. S. Eng., 111 E. 16 St., New York, Zone 3, plans by Cowell-Robinson, 25 W. 43 St., New York, Zone 36, AC & W site, low gap filler, $100,000.

Okla., Oklahoma City—TRAFFIC CONTROL—City, City Hall, defeated bonds Dec. 13, traffic control extens. $150,000. W. W. Baker, city engr. CD 11/7.

▲ **Okla., Oklahoma City**—FAIRGROUNDS IMPRVS.—City, City Hall, defeated bonds Dec. 13, State Fairgrounds and facilities. $7,084,000. W. W. Baker, city engr. CD 11/7.

▲ **Okla., Oklahoma City**—PARK IMPRVS.—City, City Hall, defeated bonds Dec. 13, park exten. and imprvs. $1,200,000. W. W. Baker, city engr. CD 11/7.

Tenn., Nashville—TV TOWER—WMS-TV Television Station, 301 7th Ave. N., 1,379½ ft. high television tower, 38th and Dakota Aves. $500,000. CD 8/12/48.

▲ **Wis., Green Bay**—STADIUM—City, City Hall, plans by J. Somerville, 403 W. Walnut St., stadium, $1,172,350.

Alaska—RURAL DISTRIBUTION LINES—Homer Electric Assn., extend lines over 25-30 mi. area to Choe, Soldotna and Kasilof. $175,000. Work to begin in spring. CD 7/16/53.

▲ **Ont., Kettleby**—SPORTS STADIUM—World Wide Investments Ltd., 21 Strathearn Rd., Toronto, plans by Michael Bach, 152 Bloor St. W., Toronto, sports stadium, $3,500,000.

Ont., Markham—PLANT, OFFICE—Chesebrough-Pond's (Canada) Ltd., 791 St. Clair Ave. W., Toronto, plans by John B. Parkin Assocs., 1500 Don Mills Rds., Postal Station "U", Toronto, 61,000 sq. ft., plant and office, $350,000. CD 12/16.

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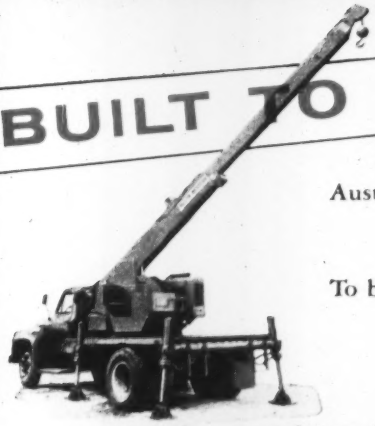
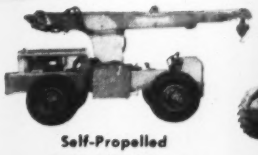


Truck-Mounted Hydraulic Crane



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Bids—Low Bids—Contracts—Third Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

▲† **Mass., Chicopee Falls**—DORMITORIES—BA 1/18—U. S. Eng., 857 Commonwealth Ave., Boston, airmen's dormitories, communications, transmitter power and reconnaissance technical laboratory and communications and telephone bldg., Westover Air Force Base, ENG-19-016-56-79, $1,500,000-$1,750,000. Extended date. McClintock & Craig, Inc., 458 Bridge St., Springfield, and Cram & Ferguson, 248 Boylston St., Boston, archts. CD 12/20.

BUILDINGS—BA

Me., Rumford—SCHOOL—BA 1/17—Town, brick veneer, masonry, school, Lincoln Ave., $344,000. Plans deposit $25, refundable. Wadsworth & Boston, 57 Exchange St., Portland, archts. CD 3/1/55.

Vt., Fairhaven—HIGH SCHOOL—BA 1/17—Town, Frank O. Styles, Supt. Schools, Fairhaven Town School Dist., Fairhaven, high school on Van Guilder property, $479,000. Plans deposit $50. Freeman, French & Freeman, 138 Church St., Burlington, archts. CD 1/12/55.

▲ **Mass., West Boylston**—SCHOOL—BA 2/9—Town, supt. schools, Crescent St., junior-senior high school, $1,216,000. S. W. Haynes & Assoc., Inc., 336 Main St., Fitchburg, archts. CD 8/29.

HEAVY CONSTRUCTION—LB & CA

† **Wexler Constr. Co.,** 118 Needham St., Newton Highlands, Mass. LB **$898,000.** Est. $700,000-$800,000. airmen's dormitory Dow Air Force Base, ENG-19-016-56-66, BANGOR, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Dec. 20. CD 11/29.

▲ **NEW HAMPSHIRE**—Dpt. P. Wks. & Hys., Concord, N. H.—**Suburban Excavators, Inc.,** 104 Elm St., Wakefield, Mass., LB **$255,012** (8 bidders) road mix hy. 1.787 mi. N. H. 28, Londonderry.

N. H.—**Manchester Sand, Gravel & Cement Co., Inc.,** P.O. Box 536, Manchester, N. H., LB **$1,167,522** (3 bidders) road mix hy. 0.757 mi. and four 3-span steel beam bridges, F. E. Everett Turnpike, Manchester. Bids Dec. 22. CD 12/14.

† **Frederick Raff Co., Inc.,** 271 Sheldon St., Hartford, Conn., LB **$786,745,** est. $850,000, replace dewatering pumps, Naval Shipyard Drydock No. 2, NOY 90976, Spec. 48704. PORTSMOUTH, N. H. Dist. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass. Alonzo B. Reed, Inc., 88 Broad St., Boston, Mass., engr. Bids Dec. 14. CD 11/14.

▲† **Raymond Concrete Pile Co.,** 31 St. James Ave., Boston, Mass. CA **$3,846,000.** Est. $3,900,000. replacement piers No. 4 and 6, Boston Naval Shipyard, NOY 90054, Spec. 48701, Charlestown, BOSTON, MASS. First Naval Dist., 495 Summer St., Boston, Mass. CD 12/27, under LB.

BUILDINGS—LB & CA

† **Property & Fiscal Officer,** Camp Keyes, Augusta, Me. rejected bids Nov. 3. motor vehicle maintenance shop, Camp Keyes, AUGUSTA, ME. LB $244,862. Will readvertise. CD 11/9, under LB.

H. P. Cummings Constr. Co., High St., Woodsville, N. H., LB **$521,333** est. $700,000. HIGH SCHOOL, Maple St. ESSEX JUNCTION, VT. Essex Junction Graded School Dist. Essex Junction, Vt. Bids Dec. 20. CD 12/2.

† **Niles M. Elander,** 11 Lupine Rd., Natick, Mass. LB **$179,800.** Est. $175,000. married and enlisted mens quarters, U. S. Naval Hospital, NOY 91007, Spec. 48724, CHELSEA, MASS. First Naval Dist., 495 Summer St., Boston, Mass. Bids Dec. 21. CD 12/14.

Sawyer Assoc. Constr. Co., 148 Cross St., Somerville, Mass. LB **$921,000.** Est. $845,000. Central Intermediate SCHOOL Concord St. and Westminster St., HAVERHILL, MASS. City, Supt. P. Bldgs., City Hall, Haverhill, Mass. Bds Dec. 20. CD 12/13.

Walter L. Ritchie Co., 1 Salem St., Malden, Mass. LB **$890,447.** Est. $845,000. Bradford Elementary SCHOOL South Main St., HAVERHILL, MASS. City, City Hall, Haverhill, Mass. Bids Dec. 20. CD 12/13.

▲ **White Constr. Co.,** 376 Boylston St., Boston, Mass. CA **$1,659,800.** Est. $1,900,000. Pemberton Section Wind Mills Point, HULL, MASS. Town, School Planning Comn. & Bldg. Comn., Memorial School, 81 Central St., Hull, Mass. CD 12/20, under LB.

▲ **Theodore Loranger & Sons,** 404 Nash Rd., New Bedford, Mass. CA **$1,098,600.** Est. $1,000,000. 2 SCHOOLS Rockdale Ave. and Phillips Rd., NEW BEDFORD, MASS. City, Supt. Bldgs., Municipal Bldg., New Bedford, Mass. CD 12/22, under LB.

▲ **Neri Constr. Co., 131 N. Main St., Millbury, Mass.** CA Approx. **$1,246,450.** Est. $1,140,000. Regional High SCHOOL Rte. 10, NORTHFIELD, MASS. Pioneer Valley Regional School Dist., c/o supt. schools, Center School, Northfield, Mass. CD 12/6, under LB.

▲ **A. E. Stephens Co.,** 1200 Main St., Springfield, Mass. CA **$2,437,900.** Est. $2,500,000. junior high SCHOOL Bradley and Wilbraham Sts., SPRINGFIELD, MASS. City, P. Bldgs. Dpt., City Hall, Springfield, Mass. CD 12/20, under LB.

▲ **A. E. Stephens Co.,** 1200 Main St., Springfield, Mass. CA approx **$1,032,179.** Est. $1,000,000. junior high SCHOOL Firetown Rd., SIMSBURY, CONN. Town, School Bldg. Comn., c/o Henry James, supt., Simsbury, Conn. CD 12/13, under LB.

A. F. Peaslee, Inc., 15 Lewis St., Hartford, Conn. CA **$819,780.** Est. $825,000. Henry A. Wolcott Elementary SCHOOL New Britain Ave., WEST HARTFORD, CONN. Town, Bd. Educ., 51 Memorial Rd., West Hartford, Conn. CD 12/13, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

Md., Towson—BA 1/12—Comrs., Baltimore Co., County Office Bldg., Zone 4, Contr. 4690, storm drainage culvert, channel, etc. under P. R. R. at Eastern Blvd. and North Point Blvd. Plans deposit $5, John B. Funk, c/o owner ch. engr.

† **D. C., Wash.**—FEEDERS—BA 1/18—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, replacement of existing feeders, at Naval Security NOY 93316. Plans deposit $10.

Md., Baltimore—HANGAR—BA 1/25—City, Dpt. Aviation, Municipal Bldg., Zone 2, furnish, erect prefab. aircraft hangar, 200x300 ft. with 25x300 lean to shop, 25x215 ft. lean to addn. to hangar No. 1, Friendship Airport. Plans deposit $5, Whitman Requardt & Assoc., 1304 St. Paul St., Zone 2, engrs. CD 9/18/46.

▲ **Md., Frederick**—SHOPPING CENTER—BA 1/10—Frederick Shopping Center, c/o Beria & Abel, archts., 1636 Conn. Ave. N. W., Wash., D. C., masonry shopping center, stores, parking area, $1,000,000.

HEAVY CONSTRUCTION—LB & CA

PENNSYLVANIA—State Hy Dpt., 506 N. Office Bldg., Harrisburg,

G. A. & F. C. Wagman, Inc., 370 E. Main St., Dallastown, Pa. LB **$670,305.** 7-span deck plate girder bridge over Maiden Creek and grading, adjoining roadway 1,932 ft. Greenwich Twp., Rte. 22, Berks Co. Bids Dec. 22. CD 12/2.

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

Pa.—**Central Pa. Quarry, Stripping & Constr. Co.,** 270 Pine St., Hazelton, Pa. LB **$535,703.** crushed aggregate base with bit. surf. I-beam bridge, Covington and Karthaus Twps., LR 17052, Clearfield Co.

Pa.—**Putman & Greene, Inc.,** P.O. Box 2012, Sta. A, Fort Wayne, 3, Ind. LB **$499,909.** 19,548 ft. crushed aggregate base with bit. surf. 22 ft., I-beam bridge Brady and Union Twps., T. R. 410, Clearfield Co.

Pa.—**Hempt Brothers,** R.D. 1, Camp Hill, Pa. LB **$216,776.** 16,810 ft. crushed aggregate base, with bit. surf. 18 ft. wide I-beam and 1 rein.-con. bridge, Montgomery Twp., Franklin Co.

Pa.—**Ralph V. Daniels,** Carlisle Pike, R.D. 1, Mechanicsburg, Pa. LB **$135,536.** wid'n. 10,950 ft. existing road with crushed aggregate base 6 ft. wide, surf. new and existing road with bit. surf. 24 ft. East Petersburg Boro, East Hempfield and Penn Twps., Lancaster Co.

Pa.—**Lee B. Marks,** R.D. 3, Lebanon, Pa. LB **$96,280.** 5,550 ft. crushed aggregate base with bit. surf. 22 ft. wide, North Cornwall Twp., L. R. 38031 (3), Lebanon Co.

Pa.—**A. B. Cole,** Meshoppen, Pa. LB **$266,351.** 9,895 ft. crushed aggregate base with bit. surf. 22 ft. wide, Great Bend Twp., Great Bend Boro, T. R. 692, Susquehanna Co. Bids Dec. 22. CD 12/2.

† **H. I. Lewis Constr. Co.,** 43 E. Main St., Middletown, Pa. LB **$184,479.** industrial waste treatment paint, Olmsted Air Force Base, ENG-18-020-56-11, MIDDLETOWN, PA. U. S. Eng., P.O. Box 1715, Baltimore 3, Md. Bids Dec. 22. CD 12/15.

▲ **Nello L. Teer,** Trust Bldg., Durham, N. C. CA **$3,020,741.** Contr. PT-104, section of approach expressway 2.53 mi. incl. 5 bridges, 5 box culverts, 1.35 mi. access roads, Patapsco Tunnel Proj., MARYLAND. State Rds. Comn., 108 E. Lexington St., Baltimore 2, Md. CD 12/5, under LB.

Trinity Building & Constr. Co. 4420 E. Eager St., Baltimore 5, Md. LB **$95,327.** Contr. 1389, c. conc. paving, BALTIMORE, MD. City, Bureau Hys., 303 Municipal Bldg., Baltimore 2, Md. Bids Dec. 21. CD 12/13.

F. O. Day Co., Inc., Rockville Pike, Rockville, Md. CA **$221,828.** repaving of improved roadways and sidewalks at various locations served by owner, HYATTSVILLE, MD. Washington Suburban Sanitary Comn., Hamilton St., Hyattsville, Md. Bids Dec. 21. CD 12/16.

SOUTH

HEAVY CONSTRUCTION—BA

† **Fla., Eglin Air Force Base**—OFFICERS' QUARTERS—BA 1/10—U. S. Eng., 2301 Grant St., Mobile 7, Ala., 2 story, 22,700 sq. ft. concrete frame bachelor officers' quarters; 1 story 3,070 sq. ft. concrete masonry officers' dining hall; constr. 21,000 sq. yds. bit. pavement; approx. 480 sq. ysd. concrete walk, install water mains, sanitary sewer sys., drainage sys. CD 11/3.

† **MISSISSIPPI**—BA 1/20—Bureau P. Rds., First National Bank Bldg., Florence, Alabama,

Lee Co.—grading, draining, grav. base course 3.693 mi. Hy. US 78 to Hy. US 45, Natchez Trace Parkway, Proj. 3D3A adv ENR 1/5. CD 7/19.

† **Fla., Jacksonville**—APRON—BA 1/24—Dpt. Navy, P. Wks. Officer, Naval Base, Charleston, S. C., repairs to low bearing-up apron, U. S. Naval Air Station, Cecil Field, NOY 92522. Plans deposit $10. CD 12/3/51.

Ky., Harrodsburg—BA 1/26—City, WW imprvs., $300,000. Howard K. Bell, 533 S. Limestone St., Lexington, engr. CD 1/24/55.

† **S. C., Myrtle Beach**—ELECTRIC DISTR. SYS.—BA About 1/26—U. S. Eng., 31 Customhouse, Charleston, electric distr. sys., Myrtle Beach Air Force Base. 38-081-56-43. CD 9/29.

† **NORTH CAROLINA**—BA 1/27—Bureau P. Rds., Dpt. Commerce, Gatlinburg, Tenn.

Swain Co.—grading, 3 tunnels, draining, base course etc. from 2 mi. west of Big Witch Gap to the southwest side of Sherrill Cove, 2.82 mi. Proj. 2Z5, Blue Ridge Parkway; adv. ENR 1/5/56.

† **S. C., Myrtle Beach**—WATER DISTR. SYS.—BA About 1/27—U. S. Eng., 31 Customhouse, Charleston, constr. water distr. sys. Myrtle Beach Air Force Base. 38-081-56-44. CD 9/29.

† **Ga., Fort Benning**—HANGAR, etc.—BA About 1/30—U. S. Eng., 200 E. St. Julian St., Savannay, 90x100 ft. steel frame hangar, on rein.-con. footings and fdns. ENG-09-133-56-37.

Va., Richmond—BA 2/14—City, Office of Purch. Agent, Mosque Bldg., Laurel and Main Sts., Div. I, grit chamber and sedimentation tanks at site of sewage treatment plant, adjacent to the southwest bank of the James River at Rockett's Wharf. Plans deposit $25. Greeley & Hansen, 220 S. State St., Chicago 4, Ill. engrs.; adv. ENR 1/5. CD 3/31/54.

BUILDINGS—BA

† **Ala., Tuskegee**—WAREHOUSE—BA 2/7—Veterans Admin., Munitions Bldg., Wash., D. C., warehouse bldg. No. 88 and alterations to bldgs. 2, 3, 3A, 4 and 4A at Veterans Admin. Hospital.

HEAVY CONSTRUCTION—LB & CA

† **VIRGINIA**—Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington,

W. H. Scott, Inc., Franklin, Va., LB **$207,136.** (3 bidders) Proj. 19A1, grading, draining, bit. surf., five timber bridges, etc. from Colonial Parkway Terminal to Black Point and return, Colonial National Historical Park, James City Co. Bids Dec. 16. CD 11/23.

FLORIDA—State Rd. Dpt., Tallahassee,

Fla.—**Industrial Const. Co.,** Box 2307, Fort Lauderdale, Fla., LB **$257,659** (4 bidders) medium excav. (dredging), rock base with surf., b. conc., timber ferry slips and bridge approaches, ferry landing facilities at Mayport and Pilot Towner near mouth of St. John's River SR-A-1-A, Job No. 7226-104. Duval Co.

Fla.—**Scott Const. Co.,** Thomasville, Ga., LB **$861,888** (8 bidders) 1,636 ft. concrete, steel bridge over the Apalachicola River, State Road No. 10, FAP No. F-006-3 (4), Job No. 5302-208. Jackson and Gadsden Counties. Bids Dec. 22. CD 12/9.

▲ **FLORIDA**—State Rd. Dpt., Tallahassee,

Fla.—**Ballenger Paving Co.,** Paris, S. C., LB **$1,433,956** (5 bidders) heavy excav., stabilizing, const. 6 in. Ocala Rock base with Type 2 bit. surf. tr., c. conc. pavement, plain; two concrete box culverts; two 190 ft., one 286 ft. concrete, steel roadway grade separation bridges, small drainage structures, etc. 4.543 mi. FAP Nos. F-007-1 (7) and IN-104-1 (1), Jobs Nos. 1610-204, 1019-201 and 1610-203, Polk and Hillsborough Counties;

Fla.—**Coggin & Deermont,** Chipley, Fla., LB **$122,070** (4 bidders) medium excav.; sand-clay base; Type 2 surf. tr., etc. 7.106 mi. Access Rd. to Cypress School, Job No. 5367-150; SR S-280, Job No. 5368-150, Jackson Co.;

Fla.—**E. E. Collins Contr. Co.,** 2175 S.W. 32 Ave., Miami 34, Fla., LB **$462,307** (3 bidders) heavy excav., 6 in. Miami Rock base; Type 2 surf. tr.; const. 90 ft. concrete slab deck bridge on treated timber piling, etc. 10.774 mi. Job No. 0359-151, SR S-846, Collier Co.; LB $238,219 (3 bidders) grading roadway; const. 8 in. Miami Rock base with Type 1-A bit. surf. tr. and Type II b. conc. surf. course; widen nine existing bridges, etc. 5.783 mi. FAP No. F-012-2 (3), Job No. 0304-202, State Rd. No. 90, Collier Co.;

Fla.—**A. B. Covell,** Defuniak Springs, Fla., LB **$141,728** (5 bidders) medium excav.; sand-clay base; Type 2 surf. tr.; storm sewers, etc. 3.79 mi. Streets in Crestview, Job No. 5750-154, Okaloosa Co.; LB $100,202 (3 bidders) medium excav.; sand-clay base; Type 2 surf. tr., constr. 140 ft. concrete slab deck bridge on treated timber piling, etc. 4.136 mi. Job No. 5766-150, SR S-85-A, Okaloosa Co.;

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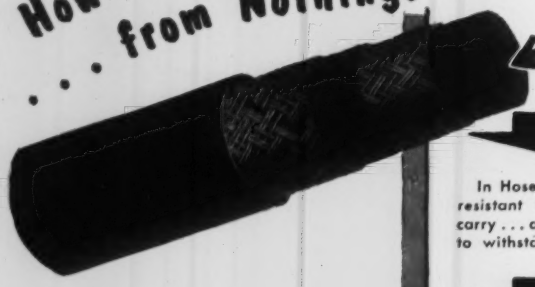

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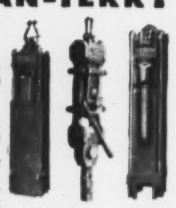

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Fla.—**Ewell Engr. & Contr. Co.**, Box 791, Lakeland, Fla. LB **$186,198** (4 bidders) 8 in. limerock base with Type 1A surf. tr. and Type II b. conc. surf. course; storm sewers, etc. 0.733 mi. Charleston Ave., Job No. 1603-114, SR 35, Polk Co.;

Fla.—**Handley Const. Co.**, Pahokee, Fla., LB **$434,462** (7 bidders) heavy excav.; const. 8 in. Miami Rock base with Type 1-A bit. surf. tr. and Type II b. conc. surf. course; small drainage structures, etc. 6.249 mi. State Rd. No. 25, FAP No. F-019-2 (8), Job No. 0501-250, Glades Co.;

Fla.—**Langston & Hubbard Const. Co.**, 115 W. Grant Ave., Orlando, Fla., LB **$627,225** (4 bidders) heavy excav.; stabilizing; const. 8 in. Ocala Rock base with Type I b. conc. surf. course and hot binder course; applying b. conc. surf. course, Type I over existing pavement; storm sewers; small drainage structures, etc. 5.673 mi. State Rd. No. 500, FAP No. F-002-1 (4), Job No. 7502-205, Orange Co.;

Fla.—**J. D. Manly Const. Co.**, Leesburg, Fla., LB **$298,296** (8 bidders) heavy excav.; const. 6 and 8 in. Ocala Rock base with Type 2 bit. surf. tr.; storm sewers; small drainage structures, etc. 6.617 mi. State Road No. 469, FAP No. S-137 (5), Job No. 1806-250, Sumter Co.;

Fla.—**Union Bldg. & Const. Co. and Central Florida Const. Co.**, Stuart, Fla., LB **$1,797,868** (5 bidders) grading roadway; const. 8 in. Miami Rock base with Type 1-A bit. surf. tr. and Type I b. conc. surf. course; const. 12 in. double course Miami Rock base with Type I b. conc. surf. course with binder course; storm sewers; curb and gutter; sidewalks, etc. 5.006 mi. State Roads Nos. 25-A and 9, FAP Nos. U-019-1 (4) and U-026-1 (13), Jobs Nos. 8725-201 and 8724-207, Dade Co.;

Fla.—**W & M Const. Co.**, Williston, Fla., LB **$99,894** (6 bidders) medium excav.; limerock stabil. base; Type 2 surf. tr. etc. 7.56 mi. Job No. 3457-175, SR S-345, Levy Co.;

Fla.—rejected bids Dec. 22, medium excav.; shell stabil base; Type 2 surf. tr. etc. 0.986 mi., Jobs Nos. 5761-151 and 5761-153, Okaloosa Co. Bids Dec. 22. CD 12/9.

Richards Constructors, Inc., Nicoville, Fla. CA $87,006. Sect I sanitary sewers, sewage force main, Section III, sewage lift stations, LEESBURG, FLA. City Comn., City Hall, Leesburg, Fla. Bids Dec. 15. CD 11/23.

▲† **Southern Roadbuilders, Inc.**, 2312 Ada Ramp Waldon Rd., Augusta, Ga. LB **$1,278,266.** runway exten., lighting facilities, MacDill Air Force Base, ENG-08-123-56-38, TAMPA, FLA. U. S. Eng., P.O. Box 4970, Jacksonville 1, Fla. Bids Dec. 21. CD 11/23.

▲† **Charles R. Shepherd, Inc.**, Doraville, Ga. LB **$1,462,446.** Est. $1,636,531. 10,000 ft. runway and connecting taxiways, Columbus Air Force Base, COLUMBUS, MISS. U. S. Eng., 2301 Grant St., Mobile, Ala. Bids Dec. 20. CD 12/14.

BUILDINGS—LB & CA

L. R **Broyhill**, 2726 N. Washington Blvd., Arlington, Va. CA **$489,373.** est. $345,000. Lynbrook Elementary SCHOOL, Annandale, FAIRFAX, VA. Fairfax Bd. Educ., Court House, Fairfax, Va. Bids Dec. 15. CD 11/25.

▲† **Southeastern Constr. Co.**, 1311 W. Peachtree St. N. W., Atlanta, Ga., CA **$1,006,436,** family HOUSINGS, 76 units, ENG-01-076-56-39. FORT McCLELLAN, ALA. U. S. Eng., 2301 Grant St., Mobile, Ala. Bids Dec. 15. CD 12/27, under LB.

▲† **J. W Bateson Co.**, Gibralter Life Bldg., Dallas, Tex. CA **$2,773,485.** HOUSING, FORT CAMPBELL, KY. U. S. Eng., 306 Federal Office Bldg., Nashville, Tenn. Bids Dec. 20, awarded Dec. 24. CD 11/30.

▲† **Algernon Blair, Inc.**, First National Bank Bldg., Montgomery, Ala. LB **$2,493,042.** Est. $2,516,565. Alt. **$2,925,170.** Est. $3,017,053. family HOUSING, base 182 units, alt. 216 units, ENG-15-029-56-36, FORT KNOX, KY. U. S. Eng., P. O. Box 59, Louisville, Ky. Bids Dec. 22. CD 11/23.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

† Mich., **Petoskey**—GAP FILLER FACILITIES—BA 1/12—U. S. Eng., 600 E. Jefferson St., Detroit, Zone 26, gap filler facilities, ENG-20-064-56-55.

BUILDINGS—BA

Wis., **Milwaukee**—SCHOOL—BA 1/26—Bd. School Directors, 1111 N. 10 St., Zone 3, Grantosa and N. 82 St. school, $750,000. Plans deposit $75, Ebling, Plunkett & Keymar, 1220 N. Milwaukee St., Zone 2, archts. CD 7/7/55.

Wis., **Kenosha**—COUNTY HOME—BA 1/31—Kenosha Co., county home addn., $842,540. Plans deposit $30, Lindl-Schutte & Assoc., 808 N. 3 St., Milwaukee, Zone 3, archts. CD 1/20/55.

HEAVY CONSTRUCTION—LB & CA

▲ OHIO—State Hy. Dpt., Columbus, Zone 15,
O—**V N. Holderman & Sons, Inc.**, 890 Oakland Park Ave., Columbus, O., LB **$3,873,704.** est. $4,384,000, (8 bidders) Type T-71 and structures 10.251 mi. USR 25-0.00, 13.29, IN-963 (3), Allen and Auglaize Counties,

O—**Ferguson & Edmondson Co.**, 407 Keystone Bldg., Pittsburgh, Pa., LB **$1,382,987.** est. $1,364,100 (2 bidders) Type T-35 on B-20 and structures, 3.727 mi. USR 6-(6.41-7.94), F-44 (4), Lorain Co.;

O.—**Frank Mashuda Companies Associated,** 1201 Grant Bldg., Pittsburgh, Pa., LB **$2,860,825.** est. $3,140,000 (12 bidders) Type T-71 and structures 5.834 mi. USR 21-0.23, F-1010 (2), Summit Co.; LB **$4,132,346.** est. $4,316,500 (9 bidders) Type T-71 and structures 9.506 mi. USR 21-4.31, F-1010 (1), Summit Co.;

O.—**Don S. Cisle, Contractor, Inc.,** 1st. Natl. Bank Bldg., Hamilton, O., LB $206,828. est. $205,500, (1 bidder) Type T-71 and T-35 0.509 mi. SR 4-(6.00-6.41), City of Hamilton, Butler Co.;

O.—**A. J. Baltes, Inc.,** 11 Olive St., Norwalk, O., LB $413,059. est. $501,200, (3 bidders). Type T-35, 2.227 mi. SR 387-1.36 City of Sandusky, Erie Co.;

O.—**Silvestri Brothers,** 713 Andrews Ave., Youngstown, O. LB $879,486. est. $1,051,600, (3 bidders). Type T-71 and structure, 2.221 mi. USR 422-0.63, City of Youngstown, Mahoning Co.;

O.—**Ohio Asphalt Paving Corp.,** 823 Prospect St., Portsmouth, O., LB **$344,829.** est. $348,700, (1 bidder). Type T-35 2.859 mi. USR 52-12.57, Scioto Co.

O.—**Arthur S. Langenderfer, Inc.,** 4690 W. Bancroft St., Toledo, O., LB **$230,860.** est. $243,100 (2 bidders) Type T-35 1.342 mi. USR 20A-(20.35-21.31), Village of Delta, Fulton Co.

cancelled bids to have been opened Dec. 20, Type T-71 and structures 1.964 mi. SR 17-8.85, U-683 (15), Villa of Brookpark, City of Cleveland, Cuyahoga Co. CD 12/2.

Penker Const. Co., 1030 Summer St., Cincinnati, O. CA **$503,425,** bold face pumping station and connecting sewers for Millcreek Sewage Plant, CINCINNATI, O. City, City Hall, Cincinnati, O. Bids Dec. 13. Awarded Dec. 23. CD 12/28 under LB.

Allis-Chalmers Mfg. Co., 1126 S. 70 St., Milwaukee, Wis. LB **$102,960.** water purification plant, pumping unit. No. 8, MILWAUKEE, WIS. City, City Hall, Milwaukee, Wis. Lloyd D. Knapp, city engr. Bids Dec. 21. CD 8/3.

MICHIGAN—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Mich.—**Louis Garavaglia,** 24240 Mound Rd., Center Line, Mich. LB **$491,774.** Est. $500,000. (7 bidders) bridge Van Dyke over Edsel Ford Expressway also sewers, pavement, water mains, utilities, UI B 65 of 82-22-10 C1-U0, etc., Wayne Co.

Mich.—**L. W. Lamb Co.,** Holland, Mich. LB $95,425. Est. **$120,000.** (13 bidders) rein.-con., steel bridge on Grand Rapids Expressway over Buck Creek 6 mi. south of Grand Rapids, F B 5 of 41-5-6 C1-R0 (F 140 22), Kent Co.

Mich.—**B. H. Sargent,** West Branch and **Wm. H. Gilliland Constr. Co.,** Alpena, Mich. LB **$209,255.** Est. $220,000 (5 bidders) rein.-con., steel bridge on relocation of M-33 over Cheyboygan River 2½ mi. south of Cheboygan, SS B1 of 16-3-1 C1-R, etc., Cheboygan Co.

Mich.—**C. A. Hall & C. A. Hall Co., Inc.,** Birmingham, Mich. LB **$95,345.** Est. $110,000. (8 bidders) rein.-con., steel bridge on relocation of M-59 over Ann Arbor Railroad north limits of Howell, F X1 of 47-10-20 C1-U, Livingston Co. Bids Dec. 14. CD 12/2 and 12/7.

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Mich.—**Charles J. Rogers, Inc.,** 14836 Grand River, Detroit, Mich. and Cooke Contg. Co., 1116 Penobscot Bldg., Detroit, Mich. LB **$1,736,626.** Est. $2,000,000 (8 bidders). dual 36 ft. c. conc. ramps, services road, utilities signals, 0.914 mi., Edsel Ford Expressway, from St. Aubin to Mt. Elliott, Wayne Co.

Mich.—**L. A. Davidson,** 213 E. Joseph St., Lansing, Mich. LB **$797,260.** Alt. $798,293. Est. $840,000. (14 bidders) 4 lane concrete, bit. con. with 4 ft. concrete divider 3.072 mi. on M-43 from Canal Rd. to Waverly Rd., SS 23-37 C3 (S 36 9), Eaton Co.

Mich.—**Detroit Concrete Products Corp.,** 19209 W. Davison St., Detroit, Mich. LB **$165,132.** Est. $190,000. (5 bidders) bit. con. surf. 4.2 mi. on M-59 from Livernois Rd. west to 0.3 mi. west of Clinton River, M 63-37 C6-R, Oakland Co. Bids Dec. 14. CD 12/2 and 12/7.

† **East Shore Asphalt Paving Co.,** Alpena, Mich. LB $140,800. airfield pavements, Wurtsmith Air Force Base, OSCODA, MICH. U. S. Eng., 600 E. Jefferson Ave., Detroit, Mich. Bids Dec. 16. CD 12/1.

BUILDINGS—LB & CA

Cunningham Bros., Inc., 359 E. Grand Ave., Beloit, Wis., CA Est. **$245,000.** 200x300 ft., 47x245 ft. FACTORY addn., BELOIT, WIS. Beloit Iron Works, 1 St. Lawrence Ave., Beloit, Wis. W. Fred Dolke, 189 W. Madison St., Chicago, Ill., engr.

Northwest Co-op. Mills, 1465 Bylsby Ave., Green Bay, Wis. Day Labor. Est. **$150,000.** fertilizer MANUFACTURING BLDG. addn., GREEN BAY, WIS.

T. S. Willis, 20 E. Milwaukee Ave., Milwaukee, Wis. CA Est. **$100,000.** FACTORY addn., JANESVILLE, WIS. Libby, McNeill & Libby, 1200 Harold Ave., Janesville, Wis.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

OKLAHOMA—BA 1/10—State Hy. Dpt., Capitol, Oklahoma City, Zone 5,

Beckham Co.—bridge on county road west of New Liberty, $25,000.

bridge on county road east of Mayfield, $25,000.

Logan Co.—concrete, steel bridge Hy. 74 at Cimarron River near Crescent, $100,000.

Sequoyah Co.—0.642 mi. grade, drainage, concrete, steel bridge over Brushy Creek on county road at Marble City, $50,000. G. H. Bittle, c/o owner, engr.

OKLAHOMA—BA 1/10—State Hy. Dpt., Capitol, Oklahoma City, Zone 5,

Kay Co.—grade, drain, stabil. aggregate base, b. conc. pavement 2.491 mi. U. S. 77 in Ponca City. $100,000. CD 11/3.

Logan Co.—grade, drain 1.519 mi. Hy. 74 at Cimarron River Bridge at Crescent, $40,000.

McCurtain Co.—grade, drain, 2 bridges 7.853 mi. Hy. 87 east of Idabel. $100,000. CD 11/3.

Okfuskee Co.—concrete pavement 7.699 mi. U. S. 62 through Boley to Castle. $500,000. CD 8/19.

Okmulgee Co.—grade, drain, one bridge 2.787 mi. Hy. 75, north of Okmulgee, $100,000.

Pittsburg Co.—grade, drain, four bridges 6.344 mi. U. S. 69 between Kiowa and Savanna, $100,000. CD 11/3. G. H. Bittle, c/o owner, engr.

Kan., Wichita—SPRINKLER SYSTEM—BA 1/12—Boeing Airplane Co., Plant No. II, Personnel Bldg., sprinkler sys., fire pumps, Wilson & Co., 705 E. Crawford St., Salina, engrs. CD 10/18.

Minn., Willmar—BA 1/16—Kandiyohi Co., A. H. Hoogeween, aud., and Chippewa Co., N. G. Miller, aud., repair C. of Judicial Ditch No. 355,756 ft. open ditch, 91,177 cu. yd., $55,235, Ted L. Chamberlain, Montevideo, engr.

† **Minnesota**—BA About 1/18—U. S. Eng., 1217 Post Office and Custom House, St. Paul, stone protection, shoal removal at Aitkin Flood Diversion Channel about 4 mi. north of Aitkin, on Mississippi River, CIVENG-21-018-56-39. CD 9/23.

Minn., Mankato—ORNAMENTAL STREET LIGHTING SYSTEM—BA 1/19—City, H. B. Vasey, mgr., constr. ornamental street lighting sys., install about 200 fluorescent luminaires, lighting standards, underground distr. circuits, $73,000. Plans deposit $5, E. G. Hill, city engr.

† **N. D., Grand Forks**—BUILDINGS OPERATIONAL—BA 1/24—U. S. Eng., 1709 Jackson St., Omaha, Neb., base operations bldg., control tower; organizational maint. hangar with shop wing; base maint. hangar with two shop wings; alert hangar; cold storage bldg.; crash and fire station; readiness bldg., Grand Forks Air Force Base. ENG-24-066-56-42. CD 12/14.

† **N. D., Grand Forks**—BUILDINGS—BA 1/26—U. S. Eng., 1709 Jackson St., Omaha, Neb., airmen's dormitories; airmen's mess bldg.; officers' quarters bldg.; officers mess bldg.; walks and utility service lines. Grand Forks Air Force Base ENG-25-066-56-43. CD 12/14.

† **Mont., Great Falls**—ROCKET STORAGE—BA 1/27—U. S. Eng., City County Airport, Walla Walla, Wash., rocket storage, check-out and assembly bldg. addn. to ammo storage and shop bldg. at Malmstrom Air Force Base, ENG-45-164-56-25.

† **Montana**—EA About 2/16—U. S. Eng., Riverdale, N. D., modification to control shaft tunnel No. 4 Fort Peck Dam and reservoir, Fort Peck located on Missouri River approx. 20 mi. southeast of Glasgow, in Twp. 26 N, R 41 E, McCone Co., CIVENG-24-016-56-24. CD 9/8/44.

BUILDINGS—BA

▲ **Minn., St. Louis Park**—OFFICE AND WAREHOUSE—BA 1/9—Coast to Coast Stores, 29 SE Main St., Minneapolis, 350,000 sq. ft. office and warehouse, on Excelsior Blvd., $2,500,000, A. Epstein & Sons, 2011 W. Pershing Rd., Chicago, Ill., archts. CD 11/14.

Minn., Westorook—SCHOOL—BA 1/18—Bd. Educ., O. Kleven, clk., elementary school, $450,000. Plans deposit $15, Pass, Rockey, Church & Townes, Mankato, archts. CD 9/2.

Minn., Anoka—GENERATING PLANT—BA 1/26—State, Dpt. Admin., P. T. Peterson, dir. of purchases, 19 State Capitol, St. Paul, imprvs., to generating plant, 1 steam generating unit, electric general unit, surf. condenser and equip., addns. to switchboard, electric constr., piping, and auxiliary equip., fdns., bldg. alterations, State Hospital, $290,000, C. Foster, 316 Medical Arts Bldg., Duluth, engr. CD 7/29.

HEAVY CONSTRUCTION—LB & CA

Moorhead Machinery & Boiler Co., 927 Second Ave. S. E. Minneapolis, Minn. LB **$117,068.** (3 bidders) furnish, install fly-ash precipitating flue, air and gas duct work, dampers, fans, etc., filtration and incineration bldg., ST. PAUL, MINN. Minneapolis-St. Paul Sanitary District, Pigs Eye Island, Minn. Bids Dec. 19.

KANSAS—State Hy. Comn., Arkansas City,

Kan.—**D. G. Hansen, Logan,** Kan. CA **$111,789.** (5 bidders) A-A base, subgrade modification single asph. surf. tr. 1.199 mi., Proj. 36-12 F 092-1 (7), Cheyenne Co.;

Kan.—**E. W. Geiger, Inc.,** P. O. Box 799, Topeka, Kan. CA **$109,225.** (10 bidders) grading 5.177 mi., Proj. 50N-80 F 062-2 (13), Rice Co. Bids Dec. 15. CD 12/5.

KANSAS—State Hy. Comn., Arkansas City, rejected bids Dec. 15. c. conc. b. conc. 0.698 mi., Proj. 77-18 U 055-1 (1), Part II, Cowley Co.; c. conc. 0.283 mi., Proj. 77-18 U 055-1 (1), Part I, Cowley Co. CD 12/5.

KANSAS—State Hy. Comn., Salina,

Kan.—**Rhoades Constr. Co., Inc.,** Newton, Kan. CA **$214,519.** (7 bidders) pavement patching wid'n., b. conc. 4.918 mi., Proj. 40-85 K 2020 (2) Part I, Saline Co.

Kan.—**Adrian Schweitzer,** Osborne, Kan. CA **$199,403,** subgrade modification single asph. surf. tr. 1.413 mi., Proj. 14-45 K 2112 (2), Jewell Co. Bids Dec. 8. CD 11/28.

Scott Bain Constr. Co., 711 Riss Bldg., Kansas City, Mo. CA **$100,609.** WW imprvs., ATTICA, KAN. City, Attica, Kan. Bids Dec. 13. CD 12/8.

† **Jarvis Constr. Co.,** Salina, Kan. LB **$174,482.** Est. $184,803. (8 bidders) A & E shop addn., Smoky Hill Air Force Base, Spec. 56-39, SALINA, KAN. U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo. Bids Dec. 20. CD 11/23.

Westglen Park Subdivision, c/o Robert West, 2826 Arroyo St., Dallas, Tex. Own Forces. **$45,625,** c.i. water lines, facilities, DALLAS, TEX.

Westglen Park Subdivision, c/o Robert West, 2826 Arroyo St., Dallas, Tex. Own Forces. **$75,000,** storm sewers; $78,500, sanitary sewers, DALLAS, TEX. CD 11/16.

Westglen Park Subdivision, c/o Robert West, 2826 Arroyo St., Dallas, Tex. Own Forces. **$50,000,** bldg. site area earthwork, grading, filling, DALLAS TEX. CD 11/16.

Westglen Park Subdivision, c/o Robert West, 2826 Arroyo St., Dallas, Tex. Own Forces. **$79,750,** asphalt paved streets, curb and gutter, DALLAS, TEX. CD 11/16.

Westglen Park Subdivision, c/o Robert West, 2826 Arroyo St., Dallas, Tex. Own Forces. **$75,000,** natural gas lines, DALLAS, TEX.

† **Charles A. Logeman,** Box 2255, San Antonio 6, Tex., LB **$360,197.** shop DM engine build-up bldg. Eng. 41-243-56-14. KELLY AIR FORCE BASE, TEX. U. S. Eng., Box 1229, Galveston, Tex. Bids Dec. 20.

† **Robert L. Guyler,** Lampasas, Tex., LB **$416,084.** est. $440,526, const. Item T017, AC&W facility, Gray Air Force Base. ENG. 41-443-56-43. KILLEEN, TEX. U. S. Eng., 100 W. Vickery Blvd., Fort Worth, Tex. Bids Dec. 21. CD 12/6.

C. W. Clyde, Jr. and Laurence & Frank Melton, Mesquite, Tex. Own Forces. **$85,000.** sanitary-storm sewers, MESQUITE, TEX.

C. W. Clyde, Jr. and Laurence & Frank Melton, Mesquite, Tex. Own Forces. $45,000, waterlines, facilities, MESQUITE, TEX.

C. W. Clyde, Jr. and Laurence & Frank Melton, Mesquite, Tex. Own Forces. **$75,000,** hard paved streets, curb and gutter, MESQUITE, TEX.

C. W. Clyde, Jr. and Laurence & Frank Melton, Mesquite, Tex. Own Forces. $45,000, bldg. site area earthwork, grading, MESQUITE, TEX.

Roland Scherer, Weatherford, Tex., LB **$397,420,** Cont. 1, Clear Fork dam and reservior, WEATHERFORD, TEX. City, City Hall, Weatherford, Tex. Bids Dec. 20. CD 12/6.

Swilling & Boyd, Whitney, Tex., LB $242,938, Cont. 2, raw water supply main (Weatherford, Tex.)

Mid-West Contrg. Co., 415 S. Haskell St., Dallas, Tex. LB $82,875, Cont. 3, intake tower and pump station (Weatherford, Tex.).

▲ **G. F. Atkinson Co.,** 10 W. Orange Ave. S., San Francisco, Calif. CA **$2,500,000.** relocated 18 mi. Northern Pacific Ry. track for Noxon Rapids Dam on Clark Fork River, NOXON, MONTANA. Washington Water Power Co., W825 Trent St., Spokane, Wash.

BUILDINGS—LB & CA

▲ **W. D. Laird,** 311 Frawley St., Houston, Tex. Own Forces. **$356,240,** 30 DWELLINGS; **$376,000,** 35 dwellings; **$381,500,** 38 dwellings. Grand total $1,113,740. BAYTOWN, TEX. CD 12/13.

B-W Const. Co., Box 1151, Bryan, Tex., LB $374,000. est. $450,000. Junior HIGH SCHOOL, BRYAN, TEX. Bryan Independent School Dist., Bryan, Tex. Bids Dec. 20. CD 12/5.

A. J. Brennan & Co., 3960 Merrell Rd., Dallas, Tex. Owner Builds. **$345,000,** 17 DWELLINGS; **$355,500,** 20 dwellings, DALLAS, TEX. CD 12/5.

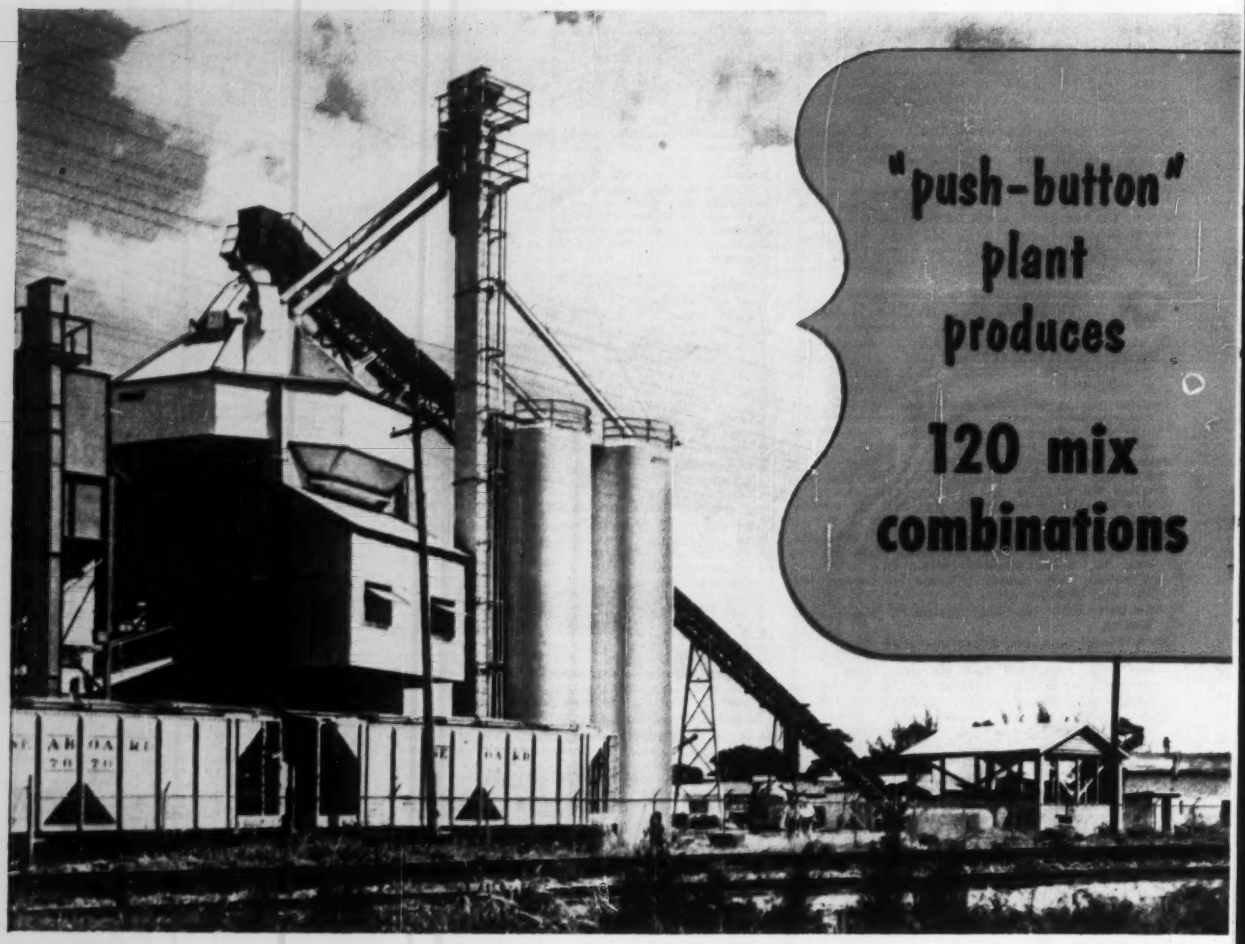
† **Bushbaum & Rauh,** 6910 Forest Park Rd., Dallas, Tex. LB **$296,262.** est. $288,700, 400-man USAR CENTER, at Lancaster and Kingsley Sts., ENG-41-443-56-49. DALLAS, TEX. U. S. Eng., 100 W. Vickery Blvd., Fort Worth, Tex. Bids Dec. 20. CD 12/7.

Duane C. Holford, c/o Royal Hills, Dallas, Tex. Own Forces. **$360,000,** 12 DWELLINGS; **$373,400,** 14 dwellings, DALLAS, TEX. CD 12/5.

Roden Constr. Co., 3617 Collinwood St., Fort Worth, Tex., LB **$468,700.** est. $500,000. 1 story Junior HIGH SCHOOL, FORT WORTH, TEX. White Settlement Common Consolidated School Dist., C. F. Brewer, Supt., 1000 S. Cherry Lane, Fort Worth, Tex. Bids Dec. 30. CD 12/23.

W. W. Price Constr. Co., Box 846, Olney, Tex., LB **$584,900.** est. $350,000. 40-bed HOSPITAL, GRAHAM, TEX. City, Graham, Tex. Bids Dec. 20. CD 11/23.

Centex Constr. Co., Inc., 4606 Greenville St., Dallas, Tex. Own Forces. **$369,620,** 30 DWELLINGS; $377,500, 33 dwellings, GRAND PRAIRIE, TEX. CD 10/28.



"Repeater" automatically re-batches any mix selection

At the turn of a dial and push of a button, this Johnson commercial transit-mix plant produces any one of 120 different size and type batches of aggregates and cement. It weighs out any combination of materials you select on the central dial-scale control panel . . . and automatically repeats any batch selection for a predetermined number of times.

The electric-control, 120-mix-selector panel provides for concrete of various strengths in any combination of materials, in ½ to 2 cubic yard batches. For each size batch there are individual selections for 3 to 6-inch slumps. Dial system makes it easy to change from one mix selection to another. To get any size or type of batch, operator merely turns the selector dial, sets the "repeater", pushes the "start" button . . . and the plant weighs out fast, with pin-point accuracy. During the batching cycle, a lock prevents accidental change of the mix selector.

Nine material weigh-dials on the control panel have individual pen-recorders. Exact weight of each batch is automatically graph-recorded. Johnson batching equipment consists of: six 5000-lb. aggregate batchers (two with automatic moisture-compensators) . . . a 3000-lb. cement batcher with dual fill valves for selecting 2 types of cement . . . 2000-lb. water weigh-batcher, and a 5-lb. (80-oz.) air entraining admix batcher. All fully automatic.

Similar Johnson equipment is also being used successfully on smaller, 24-mix-selector plants. Whenever you plan a new plant . . . or want to modernize an existing set-up, look into the increased efficiency you can get with Johnson equipment. You'll find your Johnson distributor is at your service, ready to help at any time.

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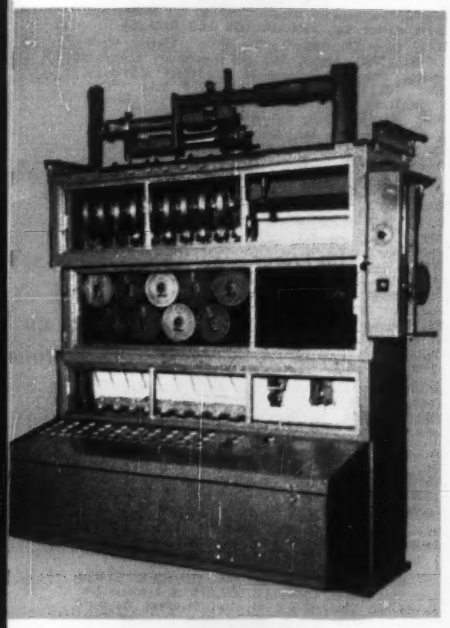
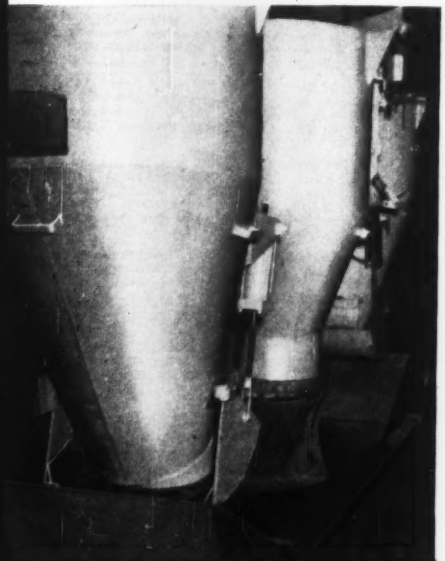


Push-button control cabinet

with 9 material weigh-dials provides full-automatic operation for Johnson 120-mix-selector plant. In addition to selector and "repeater" controls, time and date stamp, and a consecutive batch-numbering stamp, it has a complete graphic recording system for all materials. As each batch is discharged, an individual pen-recorder automatically registers the "full" and "empty" weight on graph paper . . . makes sure that a complete batch is weighed out.



Single-material aggregate batchers discharge in 8 to 11 seconds. Automatic moisture-compensaters give dry weight.
CJ-31B

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Working height is only 7 feet-4 inches on this new Parsons 155. Width over crawlers is 5 feet-4 inches for work and travel in crowded areas. Yet, there's plenty of work capacity. It digs from 5.8 in. to 25 feet per minute — 16 to 26 in. wide, 8 feet deep. Downcrowd boom is hydraulically controlled. Also has: "Tap-In" teeth, power-shift conveyor, grouser-type treads or flat shoes. (4 other Parsons models in all sizes and types.)

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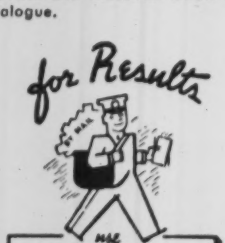

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City _____ State _____

The Austin Co., M & M Bldg., Houston, Tex., CA **$305,500**, SHOP, research production laboratory, HOUSTON, TEX. Shell Development Co., 3737 Bellaire St., Houston, Tex. CD 12/9.

Briargrove Land Co., c/o R. L. Phillips, Almeda-Genoa Rds., Houston, Tex. Own Forces. **$392,500**, 20 DWELLINGS; **$370,610**, 15 dwellings, HOUSTON, TEX. CD 9/28.

B. L. Farr, Lufkin, Tex., CA **$174,400**, PLANT remodeling, LUFKIN, TEX. Lufkin Foundry & Machine Co., 2815 Navigation Blvd., Houston, Tex. CD 12/9.

Marcus J. Adams, 189 E. Camp St., New Braunfels, Tex., CA **$129,900**, auto SHOP, NEW BRAUNFELS, TEX. Krueger Motors Co., 699 W. San Antonio St., New Braunfels, Tex. CD 10/28.

James G. Newton Constr. Co., Box 4108, Odessa, Tex. LB **$198,798**, GYMNASIUM-inside track, stadium seating, ODESSA, TEX. Odessa Junior College, Odessa, Tex. Bids Dec. 19. CD 2/16/55.

F. L. Scott & Son, 2402 W. Kings Hys., San Antonio, Tex. LB **$869,393**. HIGH SCHOOL, Hutchins Ave., SAN ANTONIO, TEX. South San Antonio Independent School Dist., 464 Dwight Ave., San Antonio, Tex. Bids Dec. 21. CD 11/30.

FAR WEST

HEAVY CONSTRUCTION—BA

† **Wash., Seattle**—BUILDINGS—BA 1/9—General Services Admin., Federal Office Bldg., Zone 4, enlarge, alter bldgs. 5-D and 266 at Naval Air Station, Sand Point.

† **Wash., Tacoma**—BUILDINGS ADDNS.—BA 1/10—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, two 8,060 sq. ft. rein.-con. existing bldgs. addn., for rocket storage check-out and assembly, McChord Air Force Base, ENG-45-108-56-85. Extended date. CD 12/5.

Utah, Ogden—BA 1/16—Central Weber Sewer & Imprvt. Dist., Dorin Boyce, Chmn., Ogden, sewerage treatment plant equipment; outlet and relief sewer; sewerage pumping plant. Grix, Mueller & Plowgain, Administration Bldg., Washington Terrace, engrs. CD 7/21.

Wash., Edmonds—BA 1/16—Olympic View Water Dist., Edmonds, 36,000 ft. 4 to 10 in. steel pipe for water sys., $44,000, J. H. Reid & Assoc., 420 Bell St., engrs.

Calif., Los Angeles—BA 1/18—Metropolitan Water Dist. of Southern Calif., 306 W. 3 St., Los Angeles, five pump houses extens. at various locations, San Bernardino and Riverside. $300,000. R. B. Diemer, c/o owner-engr.

† **Calif., Oxnard**—BULK STORAGE—BA 1/18—U. S. Eng., 751 S. Figueroa St., Los Angeles, jet fuel bulk storage, Oxnard Air Force Base. $150,000. CD 9/9/54.

† **Wash., Yakima**—BA 1/20—Purch. & Contg. Officer, Fort Lewis, surf. 16.5 mi. roads and constr. concrete headwalls at Yakima Firing Center, Inv. 56-72. CD 1/15/51, under Public Buildings.

† **Wash., Moses Lake**—BA 1/26—U. S. Eng., City-County Airport, Walla Walla, industrial-waste treatment plant Larson Air Force Base, Inv. 56-24. CD 6/3/54.

BUILDINGS—BA

Calif., Bakersfield—HEALTH CENTER—BA 1/17—Kern Co., c/o County Clk., Court House, 1 story bsmnt., rein.-con. health center. $422,000. Plans deposit $50. Robert Eddy, 2901 H St., archt. CD 8/20/54.

▲ **Wash., Bellevue**—OFFICE—BA 1/19—Puget Sound Power & Light Co., Electric Bldg., Seattle, 3 story, bsmnt., 64x242 ft. rein.-con. office, with 1 story, bsmnt. 42x50 ft. wing, $1,000,000, Harmon, Bray & Detrich, Lloyd Bldg., Seattle, archts. CD 7/20/55.

Calif., Fresno—CAFETERIA—BA 1/24—State Div. Architecture, 1120 N St., Sacramento, 121x124 ft. cafeteria, Fresno State College. $375,000. Plans deposit $50. CD 6/3.

Calif., Del Mar—EXHIBIT BLDG.—BA 1/25—State Div. Architecture, 1100 S. Grand Ave., Los Angeles, 1 story 60,000 sq. ft. exhibit bldg., for 22nd District Agricultural Assn., $450,000. Plans deposit $25.

† **Calif., Los Angeles**—CANTEEN-POST OFFICE BLDG.—BA 2/14—Veterans Admin., Munitions Bldg., Wash. D. C., canteen and post office bldg. No. 306, Veterans Admin. Center.

HEAVY CONSTRUCTION—LB & CA

Redford & Knudsen, 4557 S. 300 E. Ogden, Utah, CA $381,278, Unit 2, sewer collection sys.; CA **$207,380**, Unit 1, sewer collection sys. Grand total $780,053. LEHI, UTAH, Lehi City Corp., Lehi, Utah. Bids Nov. 28. CD 11/11.

Davis & Butler, 422 Dooly Bldg., Salt Lake City, Utah, CA $191,395, sewage disposal plant, (Lehi, Utah).

† **Security Corp.**, 3298 Highland Dr., Salt Lake City, Utah, LB **$89,318**, rehabilitation various buildings. Proj. No. 42-607-56-9. WENDOVER AIR FORCE BASE, UTAH. Purch. & Contrg. Officer, Wendover Air Force Base, Wendover, Utah. Bids Dec. 12. CD 12/6.

† **H. P. Adams Constr. Co.**, Box 1270, Yuma, Ariz. LB **$203,119**. dining hall offices at Yuma County Airport, ENG-04-353-56-59, YUMA, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids. Dec. 22. CD 12/6.

Grays Harbor Public Utility District, Aberdeen, Wash. Day Labor. Est. **$75,000**. 10 mi. 69,000 volt transmission line between Copalis Crossing and Humptulips, Grays Harbor Co., WASHINGTON. CD 8/26/54.

† **D. W. Close Co.**, 2921 13 Ave. S. W., Seattle, Wash. LB **$131,950**. install 750 kva transformer bank and enlarge 115-kv switchyard at Jim Creek substation, Spec. 44383, ARLINGTON, WASH. P. Wks. Officer, 13the Naval Dist., 1611 W. Wheeler St., Seattle, Wash. Bids Dec. 21. CD 11/10.

† **L & S Constr. Co., Inc.**, Box 1585, Moses Lake, Wash., CA **$194,911**. Est. $197,923. 10,500 sq. ft. 2 story, rein.-con., theater, rehabilitate switching station, Larson Air Force Base, Inv. 56-13, MOSES LAKE, WASH. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Dec. 22. CD 11/23.

† **F. H. Lohse**, Pasco, Wash. LB **$258,211**. Est. $225,-517. (3 bidders) production of central-mix concrete and related products for Hanford Works, RICHLAND, WASH. Atomic Energy Comn., Operations Office, Richland Wash. Bids Dec. 15. CD 11/30.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, Calif.—**Gordon H. Ball & Ball & Simpson**, 685 Delaware St., Berkeley, Calif., LB **$4,326,890** (7 bidders) grading, paving two 37 ft. roadbeds 5.8 mi., constr. 11 bridges, one pumping plant on Eastshore Freeway for 4-lane divided hy., Alameda Co.;

Calif.—**Frederickson Bros.**, 1259 65th St., Emeryville, Calif., LB **$185,101** (8 bidders) grading, surf. 1.6 mi. Sign Rte. 12 east of Valley Springs, constr. rein.-con. slab bridge, Calaveras Co.;

Calif.—**R. A. Westbrook, Inc.**, and **Morrison-Knudsen Co., Inc.**, 411 W. 5th St., Los Angeles 13, Calif., LB **$1,318,157** (11 bidders) grading, surf. approx. 11.8 mi. US 95 over Sherwin Summit, Inyo and Mono Counties.

Calif.—**Phoenix Constr. Co.**, P.O. Box 906, Bakersfield, Calif., LB **$78,648** (4 bidders) grading, surf., approx. 1 mi., State Rte. 139 south of Wasco, Kern Co.;

Calif.—**Stephen L. Vistica & Son**, 70 N. El Camino Real, San Mateo, Calif., LB **$82,875** (6 bidders) preparing and planning 1.1 mi. roadside areas, Bayshore Freeway between Army St. and 17th St., San Francisco, San Francisco Co. Bids Dec. 21. CD 11/29.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles,

Webb & White, 7220½ Melrose Ave., Los Angeles, Calif., LB **$485,470** (3 bidders) grading, paving median area with c. conc. on cement treated subgrade, altering two concrete bridges, Santa Ana Freeway between Camulos St. and Olympic Blvd., 2.1 mi., Los Angeles, Los Angeles Co. Bids Dec. 22. CD 11/29.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles,

Frederickson & Watson Const. Co., 873 81 Ave., Oakland, Calif., LB **$203,272** est. $205,000 (7 bidders) rein.-conc. box girder bridge, U. S. 101, 2 mi. east of El Rio at Santa Clara Ave., Rice Rd. Ventura Co. Bids Dec. 22. CD 11/29.

† **McDonald Bros.**, 2639 S. La Cienega Blvd., Los Angeles, Calif., CA **$633,045**. special storage and servicing facilities, Sierra Ordinance Depot. Spec. ENG-56-27. HERLONG, CALIF. U. S. Eng. 1209 8th St., Sacramento, Calif., Bids Dec. 16. Awarded Dec. 20. CD 12/21, under LB.

† **U. S. Eng.**, 751 S. Figueroa St., Los Angeles, Calif., cancelled bids to have been opened Dec. 20, pavement strengthening, ENG-04-353-56-51. MARCH AIR FORCE BASE, CALIF. CD 12/7.

Eugene G. Alyes, P.O. Box 950, Pittsburg, Calif., LB $252,609. county road exten. Spec. No. 3751-54-2, near Walnut Creek, MARTINEZ, CALIF. Contra Costa Co., c/o County Clk., Court House, Martinez, Calif. CD 10/26.

† **Underground Constr. Co.**, 75th Ave. and San Leandro Blvd., Oakland, Calif., LB **$114,000** (12 bidders) aircraft fuel pipe line, Spec. 50088. NOY 91668. MOFFETT FIELD, CALIF. Dist. P. Wks. Office, 12th Naval Dist., San Bruno, Calif. Bids Dec. 14. CD 11/25.

Barrett Constr. Co., 1800 Evans Ave., San Francisco, Calif., LB **$99,100**, aircraft hangar, SAN BRUNO, CALIF. Standard Oil of Calif., 225 Bush St., San Francisco, Calif.

† **Krull & Krull**, 68 Greenfield Ave., Vallejo, Calif., LB **$163,770** (4 bidders) 6 family housing units IFB 56-38, TRAVIS AIR FORCE BASE, CALIF. Purch. & Contrg. Office, 14th Air Division, Annex, Travis Air Force Base, Calif. Bids Dec. 19. CD 11/10.

BUILDINGS—LB & CA

† **Arrow Constr. Co.**, 1301 W. 10 St., Yuma, Ariz. LB **$753,340**. Est. $1,000,000. army family HOUSING at Yuma Test Station, ENG-04-353-56-62, YUMA, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Dec. 21. CD 12/6.

A. G. Homann, Lacey, Wash. LB **$507,828**. general contract, 1 story, rein.-con., masonry 72,000 sq. ft. junior high SCHOOL, OLYMPIA, WASH. School Dist. No. 1, 116 N. Columbia St., Olympia, Wash. Bids Dec. 21. CD 11/28.

Ken Bitter, 1017 Emerald St., San Diego 9, Calif., LB **$500,000**. 2½ story Union HEADQUARTERS bldg., SAN FRANCISCO, CALIF. Marine Cooks & Stewards Union, c/o Administrator, 450 Harrison St., San Francisco, Calif.

EVERYTHING'S UP-TO-DATE IN KANSAS CITY!

For the past 45 years, Raymond has been busy in the Kansas City area keeping up with the tremendous growth of this midwestern metropolis. In the Northeast and Fairfax Industrial Districts alone (partially shown at the right), Raymond piles support over 40 structures . . . including Kansas City Power & Light's Northeast Station, installations at the Municipal Airport and Phillips Petroleum Co. In other sections of the area, Raymond has completed contracts for Armour & Co., Swift & Co., and Colgate-Palmolive Co., to mention a few. We welcome the opportunity to show you how the experience we have gained here, and in other major cities for over half a century, can be applied to your foundation problems.

THE SQUARES INDICATE A FEW OF THE STRUCTURES ON RAYMOND FOUNDATIONS

Photo by Fairchild Aerial Surveys

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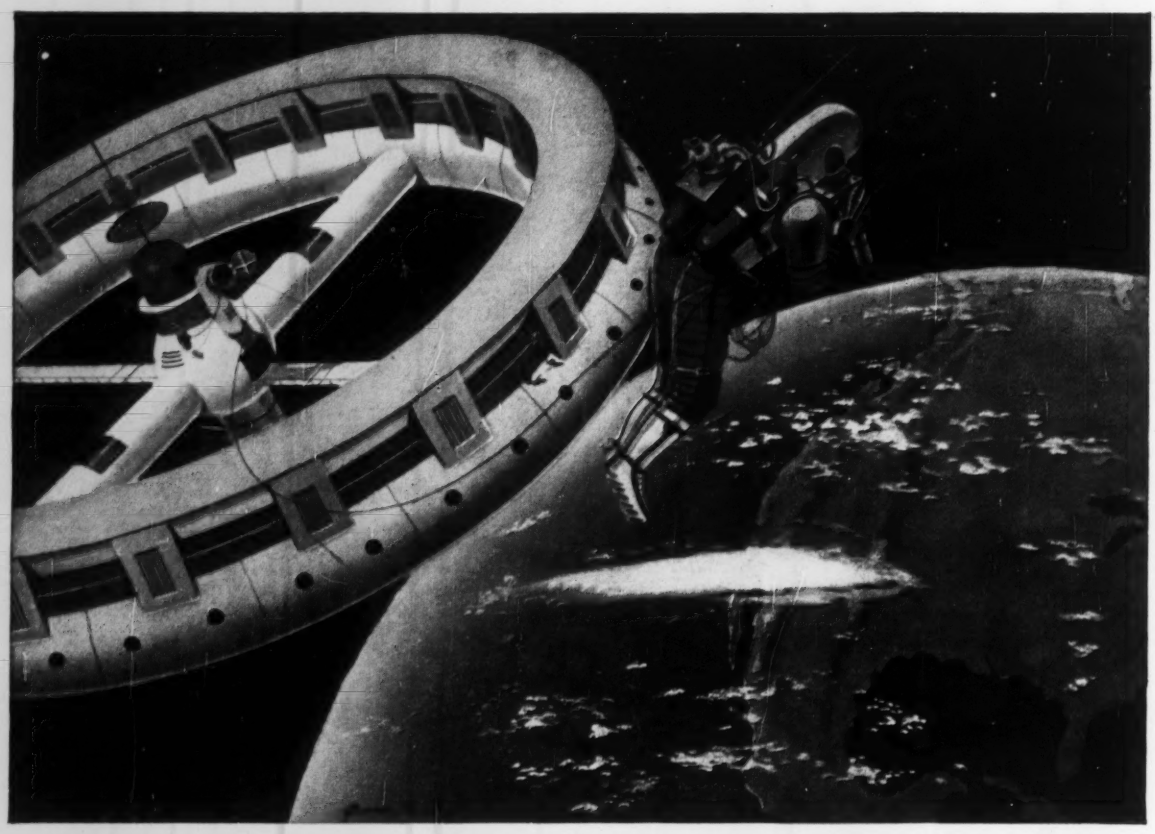

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OUR WORLD of tomorrow will bring many changes. But in one vital aspect of American living, your great-grandchildren will continue to enjoy the same dependability and service you know today. *Cast iron pipe laid today will still carry water and gas to their homes.*

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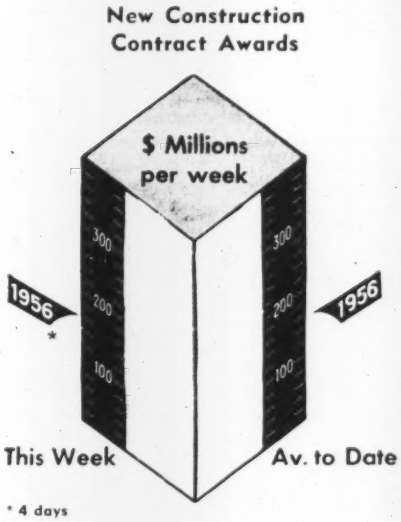
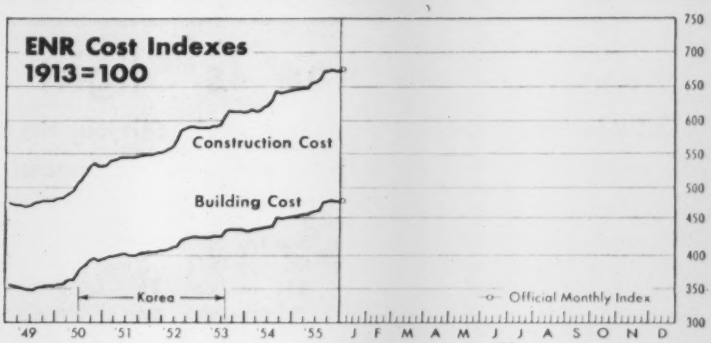
Construction Scoreboard





AMOUNT OF CONTRACTS LET
(millions of dollars)

By Ownership	This Week	Cum 1 wk 1956	Cum 1 wk % Chge
Federal	$26.8	$26.8	−73
State and municipal	73.9	73.9	−12
Total public	100.7	100.7	−45
Total private	59.8	59.8	−74
U. S. Total	$160.5	$160.5	−61
By Type of Work			
Waterworks	$1.7	$1.7	−73
Sewerage	2.9	2.9	−73
Bridges	5.7	5.7	−27
Highways	28.0	28.0	−29
Earthwork, waterways	2.1	2.1	−68
Buildings:			
Public, excl. hsg.	34.7	34.7	−58
Public housing	4.4	4.4	+633
Private housing	34.0	34.0	−67
Commercial	5.9	5.9	−67
Industrial	10.6	10.6	−90
Unclassified	30.5	30.5	−8
U. S. Total	$160.5	$160.5	−61

NOTE. Minimum size projects included are: Waterworks and waterways, $44,00; other public works, $73,000; industrial buildings, $92,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION
(millions of dollars)

	Week of Dec. 29	Cum. 52 wks 1955	Cum. 52 wks % Chge '54 '55
Corporate securities	$15.1	$3,602.8	+39
State and municipal:			
All except housing	60.6	4,905.8	−16
Housing		102.2	−9
Federal loans	1.7	128.3	+10
Federal aid		853.5	+27
Total nonfederal	$77.4	$9,592.6	+3
Federal appropriations:			
In U. S.	$.....	$3,379.7	+63
Outside U. S.	.....	84.6	+155
Total new capital	$77.4	$13,056.9	+14

ENR INDEXES (1913=100), 20-cities' average	1955 Dec. 29*	% Change from last Month	% Change from last Year
Construction Cost	676.36	+0.5	+5.1
Building Cost	480.48	+0.4	+4.9

* Official Monthly Index for Jan '56

WAGE RATES, 20-cities' average			
Common	2.107	+0.5	+4.4
Skilled (aver. 3 trades)	3.298	+0.2	+3.5
Bricklayers	3.561	+0.4	+3.0
Structural Ironworkers	3.281	+0.2	+3.5
Carpenters	3.052	+0.2	+4.0

MATERIAL PRICES, 20-cities' average			
Structural Steel, (3-mill aver.), per cwt	$4.600	0.0	+8.2
Lumber, 2x4 Fir, per M. ft. bm	119.208	+0.1	+4.4
Lumber, 2x4 Pine, per M. ft. bm	101.000	+0.3	+6.1
Cement, bulk, per bbl	3.677	+3.8	+4.6
Sand, per ton	2.394	−0.1	+4.0
Ready-mixed concrete, per c. y.	12.928	+4.2	+4.2

ENR INDEX REVIEW

	Construction Cost 1913=100	Construction Cost 1949=100	Building Cost 1913=100	Building Cost 1949=100	Volume 1913=100	Volume 1949=100
1955						
Jan.	643.72	134.95	457.91	130.17	560	162
Feb.	645.24	135.26	459.43	130.60	459	133
Mar.	645.70	135.36	459.63	130.65	691	200
Apr.	647.49	135.74	460.62	130.94	609	176
May	653.26	137.01	462.55	131.65	73	211
June	655.96	137.51	464.82	132.13	633	183
July	660.09	138.38	467.52	132.90	699	202
Aug.	672.24	140.92	478.03	135.89	508	147
Sept.	672.74	141.03	479.15	136.20	576	166
Oct.	673.89	141.27	477.99	136.44	628	182
Nov.	673.20	141.13	479.30	136.25	561	162
Dec.	673.13	141.11	478.70	136.08	544	157
1956						
Jan.	676.36	141.79	480.48	136.58	...	...

A new round of cement price increases ranging from 10 cents to 25 cents per bbl., f.o.b. city, brings an abrupt end to four months of stable construction costs. The ENR 20-cities cost indexes rise two to three points to new all-time highs in January. The new values are about 5% higher than a year ago.

Ready-mixed concrete prices are up in six of the 20 cities this week because of higher cement prices. These increases range from 10 cents per cu. yd. in Cincinnati to a high of $1.00 per cu. yd. in Atlanta.

Keep your eye on Douglas fir lumber prices. Bad weather at the mills is slowing shipment and prices are firming up.

Cement supplies are easing up, largely because of the seasonal slowdown in work schedules which has been accentuated by extreme weather in some cities. Of the 20 cities, only Kansas City and Philadelphia report cement in short supply. Philadelphia's shortage may continue well into '56. While cement mills have upped production schedules to a maximum, many Pennsylvania plants will soon shut down temporarily for repairs. Some projects in the Philadelphia area have been slowed down for lack of cement; starts on some others have been postponed.

Business and Finance

Seasonal Decline Is Slight This December

Public work stages a sharp comeback, carrying the boom along. Private work declines, especially commercial

Construction contracts reported to ENR in December ran up an impressive total of $1,693 million for the month. This is second only to the $2.4-billion record set in 1950, which included an atomic-plant contract for almost $1 billion. The weekly average of $339 million showed only a slight seasonal decline from November's $342 million. Though the December total was well above November's $1,369 million, December had five weeks and November only four.

This brings the full-year total to a record $18.7 billion, 30% above last year. An overall discussion of the year's trends will be found on page 17.

• **Public work**—Public contracts carried the ball during December. The bulk of this, of course, was in state and municipal contracts, which averaged $133 million per week, compared with only $74 million in November. All types of work in the public category were well above the previous month.

Contracts for streets and highways were $197 million, compared with $118 million in the previous month. Nonresidential public buildings totaled $192 million, more than double the $86 million total in November.

The December total for waterworks was the most impressive of all in rate of gain—$71 million compared with $12 million. This last-month spurt helped a good deal to bring two categories that had been lagging behind the 1954 total into the plus side.

With a December total of $101 million, bridges finished the year 9% ahead of 1955, though this category had been 2% behind at the end of November. Sewerage awards, with a $50-million total in December, finished the year 4% ahead, after having been 2% behind at the end of November. December also helped nonresidential public buildings to narrow a 3% gap to 1%. However, public housing continued to drop off, finishing the year 3% behind 1954.

• **Private work**—On the basis of average weekly awards, December's private work was off sharply from November—$184 million as compared with $241 million. For the five weeks of December's industrial buildings with a total of $310 million compared well with the $298 million in awards during the four-week month of November. Mass housing at $440 million did reasonably well in comparison with November's $393-million total. But commercial contracts, with a total of $107 million, were off sharply from November's $155 million. So was unclassified work, which totaled $64 million, about half the November figure. This appreciably narrowed the increase in total 1955 contracts over 1954 contracts for commercial and unclassified work, while the other types were only slightly affected. For instance, commercial work went to 17% from 22%, while mass housing dropped only slightly—from 47% to 45%. Industrial contracts actually increased their lead by 2% from 55% to 57%.

• **Regions**—As a result of the seasonal decline in December, several U. S. regions lost ground as regards their percentage of increase over 1954.

The Mid-Atlantic area lost a lot of ground during December, when its increase narrowed from 37% down to 30%. The West-of-Mississippi fell back to 28% from 31%. The Far West was affected only slightly—from 30% to 29%.

Business, however, was brisk in New England, which widened its lead from 22% to 26% in December. The South, which through the year had been gaining a lot less than other regions of the country, doubled its slender lead from 3% to 6% and the Mid-West widened its gain from 44% to 50%.

ENGINEERING CONSTRUCTION CONTRACTS—DECEMBER 1955

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $14,000; *other public works,* $73,000; *industrial buildings,* $93,000; *other buildings,* $344,000.

Five Weeks—Thousands of Dollars (000 Omitted)

	December 1955							U.S. Cumulative Twelve Months		% Change	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1955	1954	'54 to '55	December 1955
Public Works											
Waterworks	470	43,881	1,477	8,265	5,739	11,313	**71,145**	**314,157**	245,228	+28	2,212
Sewerage	549	7,703	11,196	17,976	6,923	6,043	**50,390**	**401,859**	387,890	+ 4	1,515
Bridges	11,816	17,956	15,312	11,582	15,838	29,229	**101,733**	**542,835**	499,394	+ 9	14,474
Earthwork and waterways	5,161	10,404	13,399	25	6,452	17,486	**52,927**	**546,123**	338,781	+61	7,673
Streets and roads	15,779	27,201	28,117	46,276	56,327	23,621	**197,321**	**2,136,669**	1,918,870	+11	8,890
Public buildings, residential		617	2,204	3,326	400		**6,547**	**246,159**	255,032	− 3	9,207
Other public buildings	8,111	50,716	49,773	29,691	27,109	26,269	**191,669**	**1,740,505**	1,761,972	− 1	9,207
Unclassified	4,083	42,409	26,899	4,916	10,175	11,545	**100,027**	**1,121,486**	879,567	+28	14,677
Total public	**45,969**	**200,887**	**148,377**	**122,057**	**128,963**	**125,506**	**771,759**	**7,049,793**	**6,286,734**	**+12**	**67,855**
Federal government (included in above classifications)	8,531	11,571	40,859	4,297	15,559	24,238	**105,055**	**1,634,757**	1,285,679	+27	33,407
Private											
Bridges						353	**353**	**2,728**	11,263	−76	
Industrial buildings	57,771	33,179	27,135	88,643	85,677	17,608	**310,013**	**2,950,778**	1,876,309	+57	44,652
Mass housing	7,283	116,290	9,706	178,513	119,758	8,212	**439,762**	**6,138,412**	4,232,027	+45	180,329
Commercial buildings	4,869	26,154	4,354	33,053	28,172	10,484	**107,086**	**1,655,549**	1,420,702	+17	8,425
Unclassified	210	5,423	1,186	1,813	26,099	29,347	**64,078**	**924,592**	584,998	+58	156,125
Total private	**70,133**	**181,046**	**42,381**	**302,022**	**259,706**	**66,004**	**921,292**	**11,672,059**	**8,125,299**	**+43**	**389,531**
Total Engineering Construction:											
December 1955—5 weeks	**116,102**	**381,933**	**190,758**	**424,079**	**388,669**	**199,510**	**1,693,051**				**457,386**
November, 1955—4 weeks	70,912	235,978	166,265	341,815	324,809	229,348	**1,369,127**				260,610
December, 1954—5 weeks	70,421	463,569	115,735	182,011	375,447	166,303	**1,373,486**				134,927
Twelve Months—1955	**926,654**	**4,999,508**	**2,012,558**	**4,187,827**	**4,395,448**	**2,199,857**		**18,721,852**		**+30**	**2,159,472**
Twelve Months—1954	733,878	3,843,878	1,892,384	2,794,557	3,434,936	1,712,400			14,412,033		1,679,132
% Change '54 to '55	+26	+30	+6	+50	+28	+29					+29

Copper Group Says Shortage Is Due to End This Year

Assuming there are no serious strikes or other interruptions in production, copper supply and demand should come into balance during the first quarter of 1956, according to a forecast issued by the Copper & Brass Research Association. The association represents the brass-mill industry.

The estimate is based on the expectation that more copper from new and expanded facilities will be available. The association expects that this increase in output will continue month by month for at least the next three years. Some observers even expect a slight surplus by mid-1596.

Green Bay Gets Program For Harbor Development

Green Bay, Wis. is making plans to build itself into a Midwestern port after construction of the St. Lawrence Seaway. A survey firm has just recommended a $74-million harbor and industrial development plan.

Clyde Williams & Associates, of South Bend, Ind., told city officials that Green Bay ought to develop about 1,500 acres of shoreland into a harbor, with a 500-ft-wide channel leading to a seven-slip dock. In addition to the $74-million program, the engineers recommended a $15-million plan for rerouting railroads and improving city streets. They also suggested development of a district for heavy industry in an adjoining township, to be financed by a nonprofit development corporation.

West Va. Considers Extension Of Ailing 88-Mile Turnpike

West Virginia's Governor, William C. Marland, is considering an extension to the 88-mi West Virginia Turnpike, in the hope of improving toll revenues.

So far, revenues on the turnpike, which was opened about a year ago, have fallen far short of estimates, although the situation has been improving (ENR Nov. 24, p. 146). The idea is that an extension of the toll road northward to Parkersburg on the Ohio border, and perhaps northeast to the Pennsylvania border, might develop considerable additional traffic for the entire route. However, available traffic data have not yet been analyzed to this extent.

A further big question is: How would the additional mileage be financed? A group headed by the Wall Street houses of Smith, Barney & Co., First Boston Corp., and Harriman, Ripley & Co. has been formed to underwrite a possible $100-million revenue issue provided there is some additional state backing. Another possibility is to ask voters to approve a constitutional amendment providing a general-obligation bond issue.

U. S. Steel Boosts Prices On Some Products by 1%

U.S. Steel Corp. has boosted prices slightly on some steel products, including those used in the construction industry. The price boost takes place in "extra" charges—the additional rates for processing which are tacked on to many steel products.

The current increases average out to a little less than 1% in the total price, and range as high as $7 more per ton. Effected are reinforcing bars, hot-rolled carbon steel bars, hot-rolled carbon steel wire rods, and carbon rolling and forging blooms, billets, and slabs.

Canadian Pulp Companies Plan Big West Coast Expansion

The Canadian pulp industry will invest more than $217 million in new plants on the West Coast of Canada during the next five years.

That's what M. J. Foley, president of Powell River Co. and chairman of the Western Division of the Canadian Pulp & Paper Association, told a government forestry commission in a recent hearing.

The money will be spent by eight companies that are members of the association, Foley said. He noted that the pulp industry has already invested over $200 million in new mills and modernization in the years 1947 through 1955.

Steel Shortage Is Headache To Florida's Road Program

According to the Florida Road Department, the steel shortage is becoming a serious obstacle to the state's roadbuilding program.

Chief Engineer H. E. Lewis has proposed that the Road Department place large orders for steel and stock it in warehouses at Panama City, Ft. Lauderdale, and Deland. "If we can possibly get it," says Lewis, "then we can furnish steel to the various contractors.

D.C. Seeks Industry

Washington area thinks it has big opportunity

Washington, D. C., whose major business is government, is now moving to attract industry and industrial research. For the District of Columbia and the Maryland and Virginia counties around it form the second fastest-growing metropolitan area in the U. S., topped only by Los Angeles. Municipal facilities are heavily strained. The property-tax base needs broadening.

That's why Washington's Board of Trade recently set up a committee to encourage new business to come into the Washington area. The committee has quite a story to tell. Says its chairman, Everett J. Boothby, who is also president of the Washington Gas Light Co.:

• **The Washington story**—"Our metropolitan area is not only large, it has been rapidly growing, and is a prime consumer market with incomes far above the national average. The remarkably limited development of manufacturing and wholesale trade in the area represents a unique opportunity for expansion. Unsurpassed resources for research bid fair to attract new types of research and development industries. . . .We have already seen more than a dozen industrial and research facilities established here during the past two years, and have witnessed a remarkable expansion of some others."

• **Industrial district**—That's why the Washington area is now getting a 400-acre industrial district a few miles north of the city in Greenbelt, Md. Developers of this area hope eventually to include both light and heavy manufacturing plants, distribution centers, and industrial research laboratories.

Boosters of the plan point out that not only is the Washington area a big and growing consumer market, but that it has a good deal of industrial land available. Next, Washington has an extensive rail, water, air, and highway transportation network. And, of course, Board of Trade men put great stress on the fact that industrial research labs in the area can be in close touch with many government laboratories and their staffs, as well as a vast store of technical literature in some 238 libraries.

(B&F continued on page 110)

The Cost of Money: It Isn't Likely To Go Higher in the Next Few Months

Bank borrowers are likely to repay loans in first half of 1956. And few bond issues are scheduled in the near future.

What's going to happen to the cost of borrowed money in 1956?

That's the question that a lot of contractors, who borrow short-term money to finance contracts, are asking. And it's the same big question that bothers the many types of buyers of construction—state and local governments who borrow to finance public works, corporations who want to borrow to build new plants, and ordinary people who will want mortgages to finance purchases of homes.

The answer is: Interest rates are not likely to go any higher for the foreseeable future. But they probably won't go any lower for a few months, either. Right now, for instance, the rate commercial banks charge their top-grade customers for short-term bank loans is 3½%. A year ago, it was only 3%. That boost of ½% has meant that rates for less-favored customers have gone up similarly all along the line.

• **Bankers viewpoint**—The way leading bankers see the situation now is this: Loans normally decline during the first half of the year, as some borrowers pay off the money they borrowed to finance movement of crops to market and to build up inventories for Christmas sales. Last year, though, loans actually climbed during the first half of the year, as the 1955 boom got rolling.

Most economists and other close observers of the economic scene don't expect that this will happen during the next few months. It could happen, but they are inclined to doubt it. If it does happen, bank borrowing rates may well go up. If it doesn't happen, which seems more likely, bank rates are likely to stay the same. But nobody now foresees that short-term money will get any cheaper in the next few months.

• **Long-term money**—What about the long-term money market, where bonds are sold to finance construction? In the municipal bond market, which handles issues that finance public works, there are no big issues scheduled for the next few months. The bond buyer's "visible supply" of upcoming bond issues is very low—about $165 million at last report. There are no really big issues scheduled for January except the $40-million Los Angeles sewer and fire district bonds on Jan. 10. And there are no other big issues pending schedule.

At the same time, dealers in municipal bonds have cut their inventories of securities advertised for sale to a very workable level. The latest reported figure was $261 million, as compared with a peak of about $400 million one day last month.

All this means that borrowers who come into the municipal bond market during the next few months may get a somewhat better break than the state and local governments who borrowed at stiff rates during January.

• **Corporate issues**—In the corporate bond market the picture is much the same. There are no really big bond issues scheduled in the near future. That means that companies who want to borrow in January may be able to do so a bit cheaper than they could have during the last few weeks of 1955.

• **Conclusion**—But all in all, the long-term money picture is not likely to get much easier, as far in the future as Wall Street sages can see now.

The reason is that the Federal Reserve System, which regulates the cost of money by controlling banks' borrowing power, is still following a policy of credit restraint. A few weeks ago, the Fed boosted by ¼% the rate it charges to commercial banks who want to borrow from it. That means it is still working to keep money tight. And the reason is that it does not want the current high-level business boom to get out of hand. The best way to prevent that is to make it expensive to borrow money.

ENR Cost Indexes Reach New Highs Due to Cement Boosts

A general round of cement price increases forces ENR's Cost Indexes to new record highs in January. Also contributing to the cost rise are scattered price increases in lumber, mainly in Douglas fir.

The Construction Cost Index rise 0.5% this month to a new record high of 676.36, based on 1913 = 100. This is 5.1% higher than the figure for a year ago.

The Building Cost Index rises 0.4% this month to a record 480.48, also based on 1913 = 100. This is 4.9% above a year ago.

• **Cement average**—The 20-cities average of portland cement prices goes up 13 cents to a new all-time high of $3.68 per bbl. Increases are reported in all but four of the 20 U. S. cities covered. They range from a low of 10 cents per bbl in Boston and Kansas City to 25 cents per bbl in Birmingham and St. Louis.

Scattered increases in fir lumber prices reported in recent weeks may continue. Floods in the Pacific Northwest have hurt logging operations and mill production. Shipments from mills have slowed down. Minneapolis reports a rumor that West Coast lumber wholesalers are not taking new fir orders for 30 to 60 days, owing to heavy backlogs.

Plywood production has also been affected by weather conditions, and this may lengthen deliveries.

Two Big Cement Producers Cut Back on 25-Cent Increases

Two of the big cement producers who recently announced price boosts of 25 cents per bbl effective in the first quarter of 1956 have partially cut back on their price boosts at some mills in order to meet competition in the industry.

The two companies are Universal Atlas Cement Co. and Alpha Portland Cement Co., which have reduced previously announced increases of 25 cents down to 15 cents at some of their mills.

• **Locations**—Universal Atlas has decided to boost prices only 15 cents at Northampton, Pa., Hudson, N. Y. and Independence, Kan. The 25-cent boost announced at all other company mills will remain in effect. That makes the new price at Northampton and Hudson $3.05 instead of $3.15, and $2.95 at Independence.

Alpha had previously boosted prices 25 cents at seven of its eight mills, but now is going to lower the increase at three mills down to 15 cents. The plants are: Cementon, N. Y.; Martin's Creek, Pa.; and Mannheim, W. Va. Prices at Jamesville, N. Y., will not be raised at all. That makes the price per bbl at the first three mills $3.05 instead of $3.15. At Jamesville, it will stay at $3.25.

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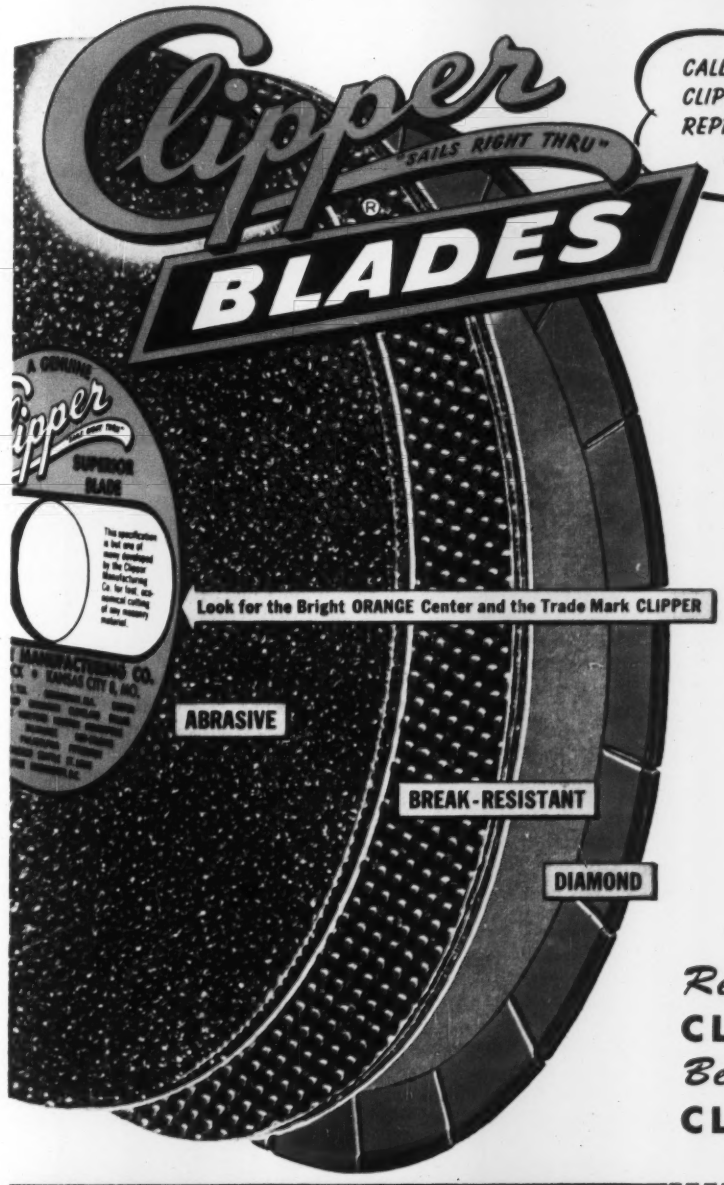

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In Dallas—

Teamwork, like a jobsite safety check by Building Trades Council secretary L. E. Dilley, superintendent Tom Crist and insurance safety engineer L. E. Moss, demonstrates that . . .

Safety Is A Joint Responsibility

Members of the Dallas chapter of the AGC are running some of the safest jobs in the nation—at least that's what the national organization thinks.

For five of the last six years, the Dallas group has won first place in the National Association's Annual Safety Contest, splitting the honor with Milwaukee in 1951. Construction accidents, serious enough to cause loss of time from work, dropped 51.4% in one year. That was in 1950, and since then the Dallas safety record has steadily improved.

The 1954 toll of occupational accidents suffered by American workers is placed by the AFL-CIO at 14,000 deaths and 1,850,000 crippling injuries. At its founding convention last month, the new federation unanimously urged cooperative action on the part of all concerned to solve this "tragic problem" and noted that "in the isolated instances where the cooperative approach has been tried, the record plainly reveals tremendous improvements in safety performance."

• **Dallas approach**—The Dallas plan was established under the leadership of the AGC with this basic principle of joint responsibility in mind. Heart of the plan is the Dallas Construction Industry Safety Council, organized in 1950.

Now composed of nine members, the council has two representatives from the ranks of the general contractors (AGC), one from subcontractors (Dallas County Construction Employers Association), three from labor (Dallas Building Trades Council), and three from the Dallas Insurance Carriers.

In its operation, the council has proved to be an effective instrument in the handling of safety problems. It has virtually eliminated labor-management friction in the safety field and has contributed to substantial savings in Workmen's Compensation insurance costs.

• **A boon to many**—The net result is one which the AFL-CIO Building and Construction Trades Department, as well as industrial leaders, have been trying to achieve for a long time.

When the building trades met for their annual convention a few weeks ago, President Richard Gray soberly reminded them that the construction accident ratio exceeds even that of the mining industry. Noting that neither contractors nor labor can solve the problem alone because "it is a two-way street," he said, "we have a responsibility to educate (construction workers) to cooperate with the employers and the employers have an equal responsibility."

And then Gray candidly added: "if we could reduce that accident figure, just think what it would mean. It would mean more profit for the employer, lower compensation benefits he would have to pay, and it would mean increased wages for our people. Yes, we could go further and give a cheaper product to the public."

• **How the Dallas plan works**—Operation of the Dallas plan is both logical and simple.

A worker spotting something on the job that he considers a safety hazard, reports it to his steward. The steward takes the matter up with the contractor's superintendent. If there's a dispute, the union's business agent contacts labor's representative on the council. The labor representative calls one of the council's insurance representatives, who notifies the contractor's insurance carrier. The insurance carrier gets his safety engineer on the job immediately.

After his investigation, the safety engineer reports to the contractor. If the claim that a hazard exists is a valid one, he tells the contractor what steps he should take to eliminate it. If it is not a valid claim, he reports that, too.

Normally, the whole routine—including the safety engineer's investigation and recommendations—is handled in a matter of hours.

Both management and labor are pleased with the way the plan works. The contractor knows that his insurance carrier—to keep his business, if for no other reason—will suggest only those things actually necessary to in-

sure job safety. And labor knows that the insurance man, anxious to eliminate the expense of claims, will not let a hazard continue if he can help it.

• **Some examples**—Last year the steel workers on a large project complained that a subcontractor had failed to lay temporary decking on the various floors to protect workmen against falling tools and other objects.

The subcontractor declined to remedy the situation. So the union's business agent set the council machinery in motion. In a matter of hours, the general contractor had his sub on the carpet—and it wasn't long before the necessary decking was laid.

On another job, a union's business agent thought the old-fashioned swing scaffold that a contractor was using was unsafe. He protested to the superintendent who argued that the scaffold, though old, was O.K. The business agent contacted the safety council's labor representative. Within an hour, a safety engineer from the insurance company representing the contractor made his investigation and reported back.

The scaffold, said the safety engineer, was old—but safe, perfectly safe. The report satisfied the union—and the contractor, too.

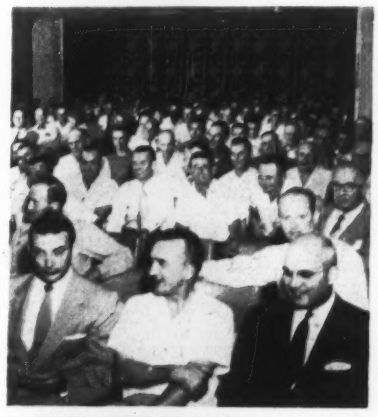
• **Training**—An annual safety school is one of the council's major projects. It's split into three two-hour sessions spread over a three-week period.

More than 700 representatives from labor, management and the insurance industry were enrolled in the program last year.

Most of the instructors are construction men who have developed outstanding safety programs. According to Julian Capers, Jr., managing director of the Dallas AGC Chapter, "they are the contractors, superintendents and foremen. And we have top men from the unions. They don't talk book talk. They talk job talk, talk that our people understand."

In the last three years, Capers says, "we haven't had any serious friction in the Dallas area as the result of a union complaint on safety. Before the council was created, friction was frequent, and often serious."

Representing contractors this year on the safety council are Charles Meers, Edmund G. Peterson and Jed Howie. Labor members are L. E. Dilley, George Terrell and A. J. Christian.



SAFETY SCHOOL held once a year, is another phase of the Dallas program.

AFL-CIO Tackles Housing

Harry Bates heads advisory group that will push labor's recommendations for easier purchase terms, lower rentals

George Meany, president of the AFL-CIO, has named seven members of the building trades to the new federation's 13-man committee on housing.

Constitutional function of the committee is to "advise on all matters relating to housing programs and policies." It acts under the direction of the president and subject to the authority of the Executive Council and the convention. Its members are appointed by the president.

One of the major tasks now facing the new committee is that of helping the Executive Council implement the broad and comprehensive housing recommendations made last month by delegates to the AFL-CIO founding convention. Most of the recommendations involve federal legislation and, under the constitution of the federation, it's up to the Executive Council to "initiate, wherever necessary, such legislative action as the convention may direct."

Chairman of the advisory committee on housing is Harry C. Bates, president of the bricklayers union. Among the other members are Richard J. Gray, president of the Building and Construction Trades Department; Joseph D. Keenan, electrical workers' international secretary; Charles MacGowan, president emeritus of the boilermakers; M. A. Hutcheson, general president of the carpenters union; Peter Fosco, laborers' general secretary-treasurer; and John Lyons, general president of the ironworkers union.

• **Goal is 2,000,000 units**—Based on the assumption that one-third of the nation is still ill-housed, the AFL-CIO housing program is keyed to a goal of 2,000,000 new dwelling units a year. Emphasis is placed on the needs of low and moderate-income families, minority groups and the elderly, and on greater federal assistance and more liberal aids to builders and operators.

At its first convention last month, the AFL-CIO enthusiastically endorsed the work of the National Housing Conference, and gave its unanimous support to the proposal that a Secretary of Housing and Urban affairs be added to the President's Cabinet. It was felt that appointment of such an official would help to focus attention on the nation's housing needs and would also provide the leadership necessary for successful solution of housing and urban problems.

As part of its housing program for moderate income families, the convention urged formation by the federal government of a National Mortgage Corporation, through which funds would be directly available to initiate building programs. It also recommended federal insurance against foreclosure threatened by such emergencies as illness and loss of job.

• **Low-income program**—The AFL-CIO has officially recognized public housing as "the only effective means for making good housing available to low-income families at costs they can afford," and has recommended adoption of a large-scale, low-rent public housing program.

In supporting this form of housing, the federation noted that public housing "is built and financed by private enterprise under a proven formula combining federal financial assistance with local community initiative."

An integral part of the plan is the 1949 Housing Act, providing for 135,000 new public housing units a year, with Presidential discretion to in-

(Continued on page 114)

crease the program to 2,000,000. The AFL-CIO recommended 200,000 units as the minimum annual rate and urged rapid completion of the 810,000-unit goal set in 1949.

• **Moderate-income group**—To meet the pressing needs of families earning less than $5,000 a year, the AFL-CIO has proposed a program of low-interest, long-amortization loans for cooperative, non-profit rental and sales housing. Within this income group, the housing problem is particularly acute, the federation said, because rising incomes have reinforced the desire for home ownership, while rising costs have continued to price them out of the housing market.

Among the specific features of the proposed AFL-CIO program for the moderate-income group are these:

• Financing of individual purchase, rental or cooperative ownership of housing through mortgages amortized over a 40-year period with an interest rate equal to the long-term cost of money to the government plus ½% for administrative costs. (This would make interest charges approximately 3%.) The goal is a monthly housing cost not exceeding 20% of family income.

• Adequate standards of construction, space and availability of community services and facilities, to protect the purchaser. Suggestions include proper sewerage facilities, basic landscaping and finished kitchens and basements or utility rooms.

• Formation of a National Mortgage Corporation, which could lend up to $4 billion a year.

• Liberal aids to builders and operators for construction of rental housing subject to strict rent ceilings.

• Federal foreclosure insurance to protect against loss of ownership because of sickness, lay-off or other emergency. Cost of the insurance would be added to the mortgage payments.

• **Urban redevelopment**—In its consideration of national housing needs, the AFL-CIO expressed concern over the "menancing spread of urban blight."

It urged expansion of the urban redevelopment program but suggested that emphasis be placed on slum clearance and rebuilding, instead of on the "less effective" measures of rehabilitation and conservation.

• **The elderly**—For the elderly, the AFL-CIO has recommended a special federal program tailored to meet their needs.

Labor's program would include:

• Annual construction of 50,000 units of public housing designed for elderly couples and single individuals.

• Federal assistance for construction of facilities providing institutional care for the aged.

In setting forth its housing goals, the AFL-CIO recommended payment of prevailing wages on construction of all federally-assisted housing units and stressed that any federal housing program should be free from all forms of racial discrimination.

Professionalism

NSPE seeks change in wage-hour regulations

Efforts to broaden federal recognition of the professional status of engineers have been renewed by the National Society of Professional Engineers.

Appearing at a wage-hour hearing held last month by the Wage and Hour Division of the U. S. Labor Department, the society urged that the regulations exempting professional employes from the minimum wage and overtime provisions of the Fair Labor Standards Act be amended to accord engineers the same recognition now given to doctors and lawyers.

The statute itself provides that neither the minimum wage nor overtime provisions of the law shall apply to persons employed in a bona fide professional capacity. In claiming the exemption, two tests must be met under the regulations—one is the type of work performed and the other is the amount of salary received. The general salary test is "compensation on a salary or fee basis of not less than $75 per week." Both doctors and lawyers are specifically exempted from this test.

NSPE criticized the imposition of any minimum salary test to determine professional status because "it conflicts with the concept of professional status and professional employment practices."

Asserting that no justification exists for the special treatment accorded lawyers and doctors—or for any special exemptions—the society pointed out that "where the state legislatures have provided a method for certifying professional competence and status, and where an individual has met the state requirements and obtained a certificate in the professional field, there is no need for the administrator to impose an artificial test of minimum salary requirements to test the professional status."

Prevailing Wages

New Florida law proves to be a stabilizing influence

Florida's prevailing wage law, passed by the 1955 legislature and effective August 3, has had a stabilizing influence on labor-management relations, particularly in the construction industry, according to James T. Vocelle, chairman of the state industrial commission.

Since the law went into effect the commission has made more than 200 wage determinations and has held three hearings as a result of protests.

Before the law was changed, contractors on public works projects were required to pay the prevailing wage in the locality where the work was done, but there was no central agency to make a pre-determination of prevailing wages.

Shortly after the new law took effect the question of whether union scales should be the prevailing wage become a controversial issue. The state industrial commission took no sides. "We are making a factual finding in each locality," said Chairman Vocelle. "Where the facts show the union scale is the prevailing wage, we establish it, but where the facts show otherwise we don't."

The actual situation in each community governs the findings. No prevailing wage is established for large areas. For example, St. Petersburg and Clearwater, although only 18 miles apart, were found to have different wage scales.

A team of four men goes into every community where the prevailing wage issue has arisen, checks payrolls of contractors, talks to workers, the unions and employing agencies to get the facts before making an official determination.

There has been a minimum of labor disputes since the new law went into effect.

Pay Boost for Industrials

The Orange, Tex., plant of U. S. Steel's American Bridge Division has granted a 15-cent hourly wage increase to all production and maintenance pipefitters. Ten cents became effective when the contract was signed; five cents was retroactive to March 2, 1955; provision is made for an improved vacation plan; and six paid holidays are granted.

Similar contracts were signed earlier with carpenters, boilermakers and hoisting engineers.

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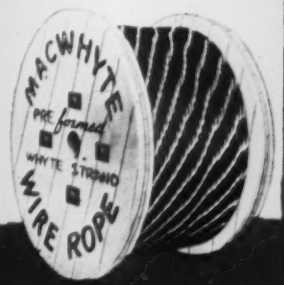

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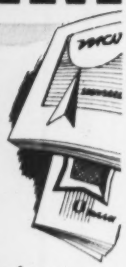

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Bids: February 14, 1956

City of Richmond, Virginia

NOTICE TO BIDDERS

City of Richmond, Virginia

Sealed proposals will be received at the office of the City Purchasing Agent, 4th floor, Mosque Building, Laurel and Main Streets, Richmond, Virginia, until but not later than 11 o'clock A. M., E.S.T., February 14, 1956, at which time they will be publicly opened and read aloud, for the following work which may be awarded in whole or in part:

Type of Work: The work to be done is part of the Sewage Disposal Project, is entitled "Division 1—Grit Chamber and Sedimentation Tanks", and comprises the furnishing of all labor, materials, equipment and work incidental thereto for the construction of the Grit Chamber and Sedimentation Tanks, as shown, specified and directed.

Location: The Grit Chamber and Sedimentation Tanks will be located at the site of the Sewage Treatment Plant, adjacent to the southwest bank of the James River at Rockett's Wharf, northeast of the United States Naval Diesel School, in the City of Richmond, Virginia.

The proposal and other contract documents may be examined at the office of the Director of Public Works, 217 Governor Street, Richmond, Virginia and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of the contract documents may be obtained from the office of the Director of Public Works, upon the deposit of Twenty-Five Dollars for each set. Any general contractor who submits a bonafide bid on the project will be refunded his payment in full for not more than three sets, and will be refunded Fifteen Dollars per set for each additional set. All others will be refunded, Fifteen Dollars per set upon the return of the documents in good condition within ten days after the opening of the bids.

PROPOSALS. COMMONWEALTH OF MASSACHUSETTS. Department of Public Works. NOTICE TO CONTRACTORS: Sealed proposals for projects as listed below will be received at Room 427, 100 Nashua Street, Boston, Mass., until 2:00 P.M. on the dates mentioned and at that place and time publicly opened and read. Charge for plans and specifications (amount returnable to bidders) and proposal guaranty, as shown. TUESDAY, JANUARY 17, 1956. 1—WARE—Hwy. and Bridge Construction Route 9. Plans & Proposal Specif. $15. Guaranty $17,000. TUESDAY, JANUARY 24, 1956. 2—BOSTON—Hwy. & Bridge Constr. (Southeast Expressway). (Section 1, Neponset River to Neponset Circle). Plans & Proposal Specif. $35. Guaranty $100,000. Minimum wage and dump-truck rates have been established. Complete information at said office. Plans on display at District offices. Right reserved to waive any informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to undertake and complete the work. By: JOHN A. VOLPE, Commissioner of Public Works. December 24, 1955.

U. S. Government

Department of Commerce, Bureau of Public Roads, December 23, 1955. SEALED BIDS will be received at the office of the Bureau of Public Roads, Gatlinburg, Tennessee, until 1:30 p.m., E.S.T., JANUARY 27, 1956, for Project 2Z5, Blue Ridge Parkway, Swain County, North Carolina. Grading, 3 tunnels, draining, base course and other work from two miles west of Big Witch Gap to the southwest side of Sherrill Cove. Length: 2.820 miles. The approximate quantities of the more important items are as follows: 640,000 cu. yd. Excavation for Roadway, 39,000 cu. yd. Excavation for Tunnels, 250 lin. ft. Concrete Tunnel Lining, 4,200 cu. yd. additional Concrete for Lining over Timber Tunnel Inner Lining and 650 M ft. b.m. Timber Tunnel Inner Lining. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the office of the Division Engineer, 1440 Columbia Pike, Arlington, Virginia, or at the address given above. H. J. Spelman, Division Engineer.

READ THE OFFICIAL PROPOSAL COLUMN OF ENGINEERING NEWS-RECORD THIS WEEK AND EVERY WEEK

OFFICIAL PROPOSALS

Bids: January 10, 1956

Contracts 420, 421 and 438

CONTRACT 420—ELECTRIC LIGHTING EQUIPMENT,
CONTRACT 421—PLUMBING EQUIPMENT
CONTRACT 438—GASOLINE-ENGINE GENERATOR SETS

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, January 10, 1956, for each of Contracts 420, 421 and 438, as follows:

CONTRACT 420, for furnishing, delivering, installing and testing electric lighting equipment, complete in every respect, for the Neversink intake chamber, the Downsville release water chamber, and the East Delaware intake and outlet chambers of the Delaware system, located in the Town of Neversink, Sullivan County, and Town of Colchester, Delaware County, New York.

CONTRACT 421, for furnishing, delivering, installing and testing plumbing equipment and appurtenances for the Neversink intake chamber, located in the Town of Neversink, Sullivan County, New York, and the East Delaware intake and Downsville release water chambers, located in the Town of Colchester, Delaware County, New York.

CONTRACT 438, for installing gasoline-engine generator sets and appurtenances and performing miscellaneous work at the West Branch effluent chamber, located in the Town of Carmel, Putnam County, and at the Kensico South effluent chamber, located near Valhalla, Westchester County, New York.

Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., of each of the three contracts can be obtained in the Chief Clerk's office, Room 1317, at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: January 26, 1956

Colonie, New York

ADVERTISEMENT—NOTICE TO CONTRACTORS
PROPOSED MAIN TO REINFORCE NORTH SECTION
OF
LATHAM WATER DISTRICT
DISTRIBUTION SYSTEM

Sealed bids for furnishing and for the unloading, hauling and installing pipe for water mains to reinforce the water distribution system of the Latham Water District, Colonie, New York, will be received at the office of the Town Clerk, Harold R. McCabe, Town Hall on the 26th day of January, 1956, until 2:00 P. M. Eastern Standard Time, and then at said office, publicly opened and read aloud.

The work will consist of furnishing and unloading, hauling and installing about 2,343 feet of 24 inch diameter, long length, Class 200 Bell and Spigot cast iron pipe, about 8547 feet of 20 inch cast iron pipe, long length, Class 150 and 200, Bell and Spigot, about 9300 feet of 16 inch cast iron pipe, Bell and Spigot, Class 150 long length, about 5924 feet of 12 inch cast iron pipe, Classes 150 and 200, long length, Bell and Spigot, and about 350 feet of 8 inch cast iron pipe, Class 200, long length, Bell and Spigot, together with valves, the specials, and connections to existing mains.

The Information for Bidders, Form of Contract, Plans, Specifications and Form of Performance Bond may be examined at the office of Keis & Holroyd, Consulting Engineers, 257 Broadway, Troy, New York. Copies thereof may be obtained at the said office of the Town Clerk or Keis & Holroyd, upon payment of $25.00 for each set. Any bidder upon returning such set promptly in good condition, will be refunded his payment and any non-bidder upon so returning such set within 30 days of date for receiving bids, will be refunded $20.00.

The Town Board, Colonie, New York, reserves the right to waive any informalities in or to reject any or all bids.

A certified check made payable to the order of the Supervisior of the Town of Colonie, New York, in the amount of 5% of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within 5 days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so he shall forfit the deposit as liquidated damages, and acceptance of the bid will be contingent upon the fulfillment of this requirement by the Bidder.

The successful bidder will be required to furnish a performance bond satisfactory to the Town Board of Colonie, New York, in the amount of the contract and having as surety thereon such surety company or companies as are acceptable to the Town of Colonie, New York.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

HAROLD R. McCABE, Town Clerk

Dated: December 22, 1955
KEIS & HOLROYD
ENGINEERS
TROY, NEW YORK

Bids: March 26, 1956

Adaminaby Dam

AUSTRALIA

Department of Public Works, N.S.W.
Construction of Main Embankments, etc.

Tenders will be received up to 2 p.m. on Monday, 26th March, 1956, for the construction of the Embankments, Intake Structure, Stilling Basin and certain other works at Adaminaby Dam. The Main Embankment will be an earth and rockfill structure with a total volume of approximately 9,500,000 cubic yards. Specifications, which include small scale reproductions of all relevant plans, may be examined at:
Australian Consulate-General, New York, N. Y.
Australian Consulate-General, San Francisco, California.
Snowy Mountains Hydro-Electric Authority, c/o Office of Bureau of Reclamation, Denver, Colorado.
Office of High Commissioner for Australia, Ottawa, Canada.
Office of Australian Trade Commissioner, Montreal, Canada.
Office of Australian Trade Commissioner, Vancouver, Canada.

Bona fide Tenderers may purchase copies of the Specifications at £(A)10.10.0 (about $23.50) per copy plus, if desired, Contact prints of plant at 5/ (about .55) each, set of 44 £(A)11.00 (about $24.50). Available by air freight from the Department of Public Works, Sydney, N.S.W., Australia.

J. B. Renshaw
Minister of Public Works

U. S. Government

Department of Commerce, Bureau of Public Roads, December 22, 1955. SEALED BIDS will be received at the office of the Bureau of Public Roads, First National Bank Building, Florence, Alabama, until 10:00 a. m., C.S.T., JANUARY 20, 1956, for the construction of Project 31D3A, Natchez Trace Parkway, Lee County, Mississippi, 3.693 miles Grading, Draining, Gravel Base Course and other work from Highway US 78 to Highway US 45. The approximate quantities of the more important items are as follows: 379,500 cu. yd. Excavation and Borrow, 20,700 cu. yd. Gravel, 326 cu. yd. Concrete, and 3,300 units of Seeding. Minimum wage rates have been fixed as required by law. Plans, Specifications and Proposal Forms are available upon request at the address given above, or Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia. H. J. Spelman, Division Engineer.

EMPLOYMENT OPPORTUNITIES

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Estimator — Fully qualified and experienced building estimator to locate in Texas, experienced in preparing estimates on large building projects. Position permanent with excellent opportunity and salary commensurate with ability. Please furnish experience record, training, salary desired, telephone number and address in first response. P-8555, Engineering News-Record.

Civil Engineers, Designers, Draftsmen experienced in the design of sewers, pumping stations, sewage treatment plants, water supply systems, structural and hydraulic design, hydraulic computations, specs. O'Brien & Gere, 100 E. Genesee St., Syracuse, N. Y.

Wanted: Bridge & Highway designers with office and field experience by consulting engineering firm in Pennsylvania. Give complete details and salary desired. P-8381, Engineering News-Record.

Wanted — Superintendent. Free to Travel, capable of estimating and constructing sewage disposal plants, sewerage interceptor systems, water filtration and distribution systems. State age, education and proposition desired. P-8745, Engineering News-Record.

Structural & Misc. Steel Detailer—Must be experienced, excellent climate, good housing conditions, top wages. Give full particulars. Tucson Iron Works, Box 1949, Tucson, Arizona.

Civil Engineer, Engineering Department of progressive city. Salary $5040-$5940 contingent upon experience. Information and brochure available from Personnel, Municipal Building, Hamilton, Ohio.

Having opening for well qualified foreman and superintendent in Florida. Apply to P-8737, Engineering News-Record, giving complete background, references, salary desired, etc.

Superintendent wanted by concrete and asphalt paving contractor in Maryland—Virginia—D.C. area. Unusual opportunity. P-8735, Engineering News-Record.

Wanted Superintendent-Engineer — by substantial N. Y. State paving firm to handle heavy excavation and grading work. Must have C. E. degree and at least 5 years field experience in supervisory capacity. This job requires only top-flight ability. To the right person this job should return an annual income of $25,000.00. Our personnel know of this ad. P-8572, Engineering News-Record.

Civil, electrical and mechanical engineering, physics, chemistry, mathematics instructorships, assistant and associate professorships, preparatory and college level in the Near East. All teaching is in English. Apply Near East College Association, 40 Worth Street, New York 13.

Help Wanted: Asst. Engineer, Ontario County $4400.00 New York State residents: Exam March 2, 1956. Last date for filing applications February 9, 1956. Applications and further information available at office of Civil Service Commission, Court House, Canadaigua, New York.

N. J. General Contractor needs general superintendent to handle 5 jobs up to one million each. State field experience, sub. and labor following. Send resume and references. P-8751, Engineering News-Record.

(Continued on following page)

OPPORTUNITIES
ENGINEERS—CIVIL

To make property surveys and structural cost estimates. Knowledge of railroad construction desirable, but not essential. Several openings. Steady and secure employment, liberal sick leave, vacation, 40 hour work week, 12 paid holidays per year, group insurance at reduced rates, modern pension system, merit system promotions. Ideally located to several colleges and universities.
Salary range $4200 to $5100.
Send or bring history of education and experience, as well as references to:
Department of the Treasury,
State of New Jersey,
Administrative Division,
State House, Trenton 25, New Jersey.

EMPLOYMENT OPPORTUNITIES

The Advertisements in this section include all employment opportunities—executive, management, technical, selling, office, skilled, manual, etc.

Positions Vacant
Positions Wanted
Part Time Work
Civil Service Opportunities....
Selling Opportunities Wanted
Selling Opportunities Offered
Employment Agencies
Employment Services
Labor Bureaus

DISPLAYED —RATES— **UNDISPLAYED**

The advertising rate is $28.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

An advertising inch is measured ⅞" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

$2.10 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Box Numbers—counts as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW ADS to ENGINEERING NEWS-RECORD, 330 W. 42nd St., N. Y. 36, N. Y. for January 26th issue closing January 16th

HYDRAULIC ENGINEERS

Get established in California, where water development is big business. State needs experienced and beginning engineers to specialize in Water Project Planning, Water Quality Control, Investigation of Underground Waters, Supervision of Dam Construction, Flood Control Studies, etc. Immediate appointment to career jobs with rapid promotion, liberal vacation, high-grade professional training, generous retirement plan.

ASSISTANT HYDRAULIC ENGINEER

Requires Civil Engineering degree and two years' engineering experience, including one year in water supply, snow, flood control, salinity and irrigation surveys or equivalent work. Salary range, $436-$530.

JUNIOR CIVIL ENGINEER

Requires degree in civil engineering or qualifying experience matching college education on a year-for-year basis. Salary range, $395-$436.

Advancement to higher level positions for capable men in California's intensive expanding water development program. Write for information to:

MAX BOOKMAN, ENGINEER-IN-CHARGE
Southern California Office
STATE DIVISION OF WATER RESOURCES
Mail Address: **P. O. Box 15718**
Office Address: **1100 South Grand Avenue**
Los Angeles, California

Mechanical Structural & Electrical Engineers & Draftsmen

Varied and interesting positions in a progressive consulting office. Long range program, excellent working conditions, employee advantages include profit sharing bonus plan, and insurance benefits.

Send complete resume of experience and qualifications to:

SAMBORN, STEKETEE & ASSOCIATES, J. H. V. EVANS
Engineers and Architects
1214 Cherry Street
Toledo 4, Ohio

SALARIED POSITIONS $5,000 — $35,000

We offer the original personal employment service (established 46 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.

R. W. BIXBY, Inc.
559 Brisbane Bldg. Buffalo 3, N. Y.

(Continued from preceding page)

EMPLOYMENT SERVICE

Salaried personnel, $5,000-$30,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, P. O. Box 674, Manchester, Vermont.

EMPLOYMENT AGENCIES

Wanted Engineers, Designers, Draftsmen-Structural, Architectural, M.E., C.E., E.E. and Ind., also Teachers and Chemists. Cleveland Engineering Agency, 2132 E. 9, Cleveland.

POSITIONS WANTED

Available immediately construction engineer (Electrical) for overseas 44, single, 6 years experience design and inspection heavy construction and buildings. PW-8594, Engineering News-Record.

Heavy Duty Truck Driver Foreman, or Driver Semi, Dirt. Desire foreign work in heavy construction. 15 years overseas. 12 to 18 months contract. Good health, habit, employment record excellent. Phone 3-6905, Wire, write John English, 47 Ormond Avenue, West Asheville, N. C.

Construction Manager. Interested in association with reputable building contractor to direct entire field construction operation. Considerable multi-million dollar experience in both managerial administration and field construction superintendency. Registered Civil Engineer; graduate. Age 38. Available after January 10. PW-8747, Engineering News-Record.

Architects' or owners' representative: Field supervisor, cost control, budget estimates, industrial or public projects. PW-8734, Engineering News-Record.

Carp. Supt. heavy construction bridges, schools, churches, industrial building. Presently employed desirous of change. Will travel. Age 41. PW-8690, Engineering News-Record.

Construction Engineer available April 1st. 30 years experience. Ohio license. Prefer sewage or water plant construction. PW-8767, Engineering News-Record.

Inspector or Resident Engineer man qualified to handle all phases of highway express ways or air base construction. 25 years experience on the above. Grading, drainage concrete design & control, and asphalt paving and plant control. Foreign and domestic experience. Will go anywhere. PW-8763, Engineering News-Record.

Electrical Engineer: Thirty years experience with power company, consulting engineers, field installations, design, operation covering all phases of electrical work. Married. No children. Further information will be furnished on request. PW-8754, Engineering News-Record.

Civil Engineer, 30, BSCE, 2 yrs. estimating commercial construction, 5½ yrs. field and related design heavy construction. PW-8785, Engineering News-Record.

Recently organized structural engineering firm specializing in reinforced-concrete and structural-steel design of highway and railroad bridges, building, frames, and foundations, seeks subcontract work on hourly-fee, percentage, or plan-production basis. Principal is licensed in N. Y., Pa., Conn., and Mass. Brochure mailed upon request. Stuart H. Snyder, Consulting Engineer, 508 Demong Drive, Syracuse 3, N. Y.

Swedish Civil Engineer desires American employment with Swedish-American firm. Resume upon request. PW-8780, Engineering News-Record.

ENGINEERS

STRUCTURAL
HIGHWAY
ELECTRICAL

for work on
Bridges, Expressways, Turnpikes

PERMANENT POSITIONS DEPENDING ON EXPERIENCE AND ABILITY

PAID VACATION, SICK LEAVE HOSPITALIZATION, LIFE INSURANCE

INCLUDE EDUCATION, EXPERIENCE, REFERENCES AND SALARY EXPECTED IN APPLICATION LETTER

Howard, Needles, Tammen & Bergendoff
55 Liberty St. New York 5, N. Y.

Structural Designers

To do work for the City of Milwaukee on a $2,000,000 program for 1956 in connection with the design and construction of bridges and structures. Employees will be given fundamental experience in approved design and engineering methods. Opportunities for advancement. Appointees have civil service status and become members of an actuarily sound retirement system.

Structural Designer II. Beginning salary $5160 per annum. B.S.C.E. degree with 2 years of structural engineering or design experience required.

Structural Designer I. Beginning salary $4790 per annum. B.S.C.E. degree or senior status in engineering school.

Write Ovid B. Blix, City Personnel Director, stating education and experience and for additional information.

City Hall Milwaukee, Wisconsin

ENGINEER

MASTER MECHANIC to run concrete products and ready mix plant. Salary in five figures.

P8761, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

STRUCTURAL STEEL DETAILERS AND CHECKERS

Top rates for exp. men, long program, overtime, vacation, holidays.

SAMUEL LICHTENBERG
STRUCTURAL ENGINEER
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EMPLOYMENT . . . EQUIPMENT . . . BUSINESS

OPPORTUNITIES

Whatever your need—
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PERMANENT OPENINGS FOR QUALIFIED ENGINEERS EXPERIENCED IN DESIGN OF:

STRUCTURAL STEEL
REINFORCED CONCRETE

APPLICABLE TO DESIGN OF BRIDGES, BUILDINGS, TEST FACILITIES, AND GENERAL INDUSTRIAL STRUCTURES

also

PIPING DESIGN & LAYOUT
HEATING & VENTILATING
POWER AND LIGHTING

APPLICABLE TO DESIGN OF INDUSTRIAL FACILITIES, TEST FACILITIES, POWER PLANTS AND ELECTRICAL INSTALLATIONS.

OPENINGS ALSO AVAILABLE FOR DRAFTSMEN, DETAILERS AND SEVERAL RECENT GRADUATES.

We desire engineers who want long range employment with ample opportunity for professional development and advancement. Employee Benefits Plan plus other attractive features.

Please write fully to

SVERDRUP & PARCEL, INC.

Engineers - Architects

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(Scheduled Overtime for Designers & Draftsmen)

Refinery, Chemical, Industrial, or Power Plant Experience

Immediate Openings in our New York offices for men with above stated job experience

BECHTEL CORP. is a progressive Engineering & Construction Firm engaged in world-wide operations

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BECHTEL CORP.

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ENGINEERS
Foreign Service

Graduate Chemical, Mechanical and Electrical Engineers with minimum 5 years' experience. For specialized assignments commensurate with qualifications in plant maintenance, inspection, technical services, process studies and related work. Write giving full particulars regarding personal history and work experience. Please include your telephone number.

Recruiting Supervisor, Box 95

ARABIAN AMERICAN OIL COMPANY

505 PARK AVENUE, NEW YORK 22, N. Y.

ENGINEERS
and
DRAFTSMEN

Growing company expanding engineering division. Opportunities for rapid advancement into management and development work on TV broadcast antenna towers, industrial buildings, aircraft hangars, mechanical parking garages. Liberal benefits, including retirement. Moving expenses paid.

Write
E. L. Smith

DRESSER-IDECO COMPANY

One of the Dresser Industries

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Columbus, Ohio

BRIDGE & HIGHWAY DESIGNERS & DRAFTSMEN

Permanent positions, Hospitalization benefits. Paid vacations, holidays and sick leave. Write full qualification details, personal information, references and salary. Interviews arranged promptly.

FRANKLAND and LIENHARD

99 Wall St., New York 5, N. Y.

Civil Engineers

To do engineering work for the City of Milwaukee on an annual $20,000,000 construction program in connection with the design and construction of sewers, water distribution system, street paving work, bridges and viaducts or to do surveying and general field engineering work. Will receive fundamental experience in approved engineering and construction methods. Opportunities for advancement. Good working conditions. Opportunity to work for Master's degree in engineering.

Beginning salary: Engineering Graduate $4790 Engineering Graduate with 2 years of experience $4990; Possessor of Master's degree in engineering $5195

Write Ovid B. Blix, City Personnel Director, stating education and experience and for additional information.

City Hall Milwaukee, Wisconsin

ASSISTANT SUPERINTENDENT OF PUBLIC WORKS

Wanted: Civil Engineer for the position of Assistant Superintendent of Public Works in the Town of Darien, Conn. Must have had a minimum of 4 years of responsible experience in engineering work including experience in municipal work. Applicant must have Professional Engineering license issued by the State of Connecticut or be eligible for said license in the State of Connecticut by June 1957. Salary is open For details write to

WALTER A. BATES
Superintendent of Public Works, Darien, Conn.

ENGINEERS
Architects

A leading engineering and construction company has immediate openings in its Cleveland and New York offices for engineers, group leaders and designers in one or more of the following categories.

ARCHITECTURE

Jr. Designers and designers with industrial design and checking experience

ELECTRICAL

Lighting layouts, controls and power layouts.

STRUCTURAL

Experience in industrial buildings, capable designing structural steel and reinforced concrete with equal facilities.

MECHANICAL

Experience in Process piping, layout and design, heating, ventilating and air conditioning and underground plumbing.

We have openings in all the above classifications in our Cleveland office. Our New York office is also accepting applications from persons qualifying for the Architectural, structural and mechanical positions.

These positions offer long term employment with unlimited opportunities for advancement for individuals who wish to use their engineering training and education as a stepping stone to greater earnings and security; no age limitations.

Top salaries paid for qualified personnel

In addition we offer paid vacation and holidays, sick leave allowance, a group life insurance and hospitalization program and a liberal moving allowance.

Please submit complete resume stating education, experience, salary requirements and date available to:

The H. K. FERGUSON CO.
Engineers and Builders
1783 E. 11th St., Cleveland 14, Ohio
or
19 Rector St., New York 6, N. Y.

DESIGN ENGINEERS
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McKee with more than 50 years of successful operation, doing business all over the world; is one of the largest, oldest and best known engineering and contracting firms in the business. The McKee organization continues to grow and expand, thereby offers many present and future opportunities for qualified and experienced engineers and designers in the following fields:

PIPING
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LAYOUT ENGINEERS
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Applicants should have at least five years' of experience.

Here is a rare opportunity for you to utilize your engineering abilities and talents.

McKee offers top compensation commensurate with experience and ability. No age limitations.

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Please Send Resume to:

Edward A. Kolner
ARTHUR G. McKEE & CO.
2300 Chester Ave., Cleveland 1, Ohio

STRUCTURAL and MECHANICAL DESIGNERS
Having experience with heavy material handling equipment
Permanent Position For Qualified Men

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Phone or Write
Chief Engineer for interview

THE WELLMAN ENGINEERING CO.
7000 CENTRAL AVE.
Cleveland 4, Ohio
Telephone EN 1-0842

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An expanding field with a top-flight organization.

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Wanted to train as fieldmen. Send personal resume to:

P-8418, Engineering News-Record
330 W. 42nd Street, New York 36, N. Y.

ENGINEERS
Designers Detailers Draftsmen
for work on
Bridges, Expressways, Turnpikes

PERMANENT POSITIONS DEPENDING ON EXPERIENCE AND ABILITY
PAID VACATION, SICK LEAVE HOSPITALIZATION, LIFE INSURANCE
INCLUDE EDUCATION, EXPERIENCE, REFERENCES AND SALARY EXPECTED IN APPLICATION LETTER

Howard, Needles, Tammen & Bergendoff
1805 GRAND AVE. KANSAS CITY 8, MO.

Architect
To have charge of architectural work required for public buildings, bridges, viaducts and other public works projects of the City of Milwaukee. Applicants must be registered Architects or be able to obtain registration in Wisconsin. Must have at least eight years of architectural experience and must not be over sixty years of age. Appointee will have civil service status and will become a member of an actuarily sound retirement system.

Beginning salary $7900 per annum advancing after one year of service to $8200 per annum.

Write Ovid B. Blix, City Personnel Director, stating education and experience and for additional information.

City Hall Milwaukee, Wisconsin

HIGHWAY ENGINEERS
Junior positions in California's huge highway program. High level professional experience with excellent promotional opportunities offered to recent college graduates in civil engineering. $395 to start with raise after 6 months. Positions open at this level only. Write for illustrated booklet, Section E, State Personnel Board, 801 Capitol Avenue, Sacramento 14, California.

WANTED:
YOUNG ENGINEER

Preferably civil engineering graduate by large northern Ohio building supply company. Experience not necessary. Send full information as to experience, education, etc.

P8632 Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

EXPERIENCED HYDRAULICS ENGINEER WANTED

Graduate engineer experienced in paper mill hydraulics, planning and development of piping layout systems, etc. for large expanding and progressive mill in Maryland. Good salary, all benefits and excellent opportunity for advancement. Send detailed resume of experience and education to

Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

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BOX NUMBERS count as one line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

The advertising rate is $23.60 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured 7/8 inch vertically on one column, 3 columns—30 inches—to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

Send NEW ADVERTISEMENTS to N. Y. Office, 330 W. 42nd St., N. Y. 36, N. Y. for January 26th issue closing January 16th

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Learn latest methods to organize and run work. Prepare for the top jobs.

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GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
P.O. Box 921 Lake Worth, Florida

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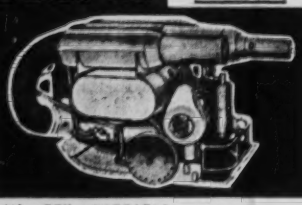

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Editorials

No Compromise of Standards

THE OHIO TURNPIKE COMMISSION is considering reducing the standards set originally for the second Ohio turnpike in order to cut the cost to the point where the potential income will provide adequate support for a bond issue. Interchanges are to be eliminated, minor intersections at grade will be permitted, grades steepened somewhat, pavement thinned where traffic is light, and shoulder widths reduced.

That is a discouraging proposal and one that we hope will never get beyond the proposal stage. There should be no compromise of standards set for highways of that type because once low standards have been built into a heavily traveled highway, correcting them in the future is very costly, if not impossible. Safety also is sacrificed. A better plan would be to build only those parts of the turnpike that will produce adequate income. The remaining parts can be built when traffic warrants.

Partisanship Builds Bad Bridges

NO MATTER WHAT COURSE OF ACTION IS TAKEN on the proposed southern crossing of San Francisco Bay (ENR Dec. 22, p. 19), truckers and motorists crossing the bay will suffer. Suppose, for example, the California legislature takes no further action at its March session. Then by law the toll bridge authority is required to build an expensive facility traveling a circuitous route. And tolls on the new crossing as well as the existing Bay Bridge must be raised.

But if the legislature is determined to keep the same toll rate, and cuts out some of the high-cost approaches that it has required, then the new structure will be much less useful. And, if the southern crossing is built with or without extensive approaches, traffic on the existing bridge will be reduced only slightly and only temporarily. So the effect will be no long-term traffic relief.

Partisanship seems to be the root of the trouble. Elected officials have striven for personal gain by playing politics with Bay transport problems. Powerful newspapers on both sides of the Bay have selfishly thrown their weight around. And cities have adamantly looked only to their short time benefit without considering the long term growth of the entire community. No one of these groups—politicians, the local press, and municipalities—can be singled out to blame for the impasse. But all have contributed to it.

This leaves the San Francisco Bay area still on the horns of a dilemma. The parallel San Francisco-Oakland Bay Bridge recommended by state engineers in 1948 is still probably the best solution from both cost and traffic relief standpoints. But the same partisan motives that blocked the parallel bridge are still actively at work. So it appears that a bad crossing with high cost and longer travel will still probably be better than the creeping strangulation from the tremendous traffic demand on the existing bridge.

Construction and Foreign Aid

NEW DEVELOPMENTS IN PROSPECT for our foreign-aid program should, if it is possible to arrange it, offer enhanced opportunities for U. S. engineers and contractors on foreign work. The qualification is stated because foreign aid is necessary and worthwhile to counter Russian strategy, even though the expenditures make no contribution to the American economy. But it should be possible to make some of these contributions by way of U. S. goods and services instead of the goods and services of other countries.

These thoughts are engendered by the news out of Washington that the Administration is going to ask Congress for authorization to begin a new 10-yr program of long-term developments in non-Communist countries, including special funds for under-developed areas in Southeast Asia and the Middle East. Many of these developments will be of an engineering and construction nature, requiring technical direction, engineering design and equipment. But unless some attention is given to assuring that American firms have some part in supplying these special talents and machines, the advantage is apt to be all with their European competitors.

That this is fact and not fiction may be seen in the case of the High Dam in Egypt, where it is revealing to note that no American engineering firm could come anywhere near the fee for which a British firm contracted to do the design. In addition, the Egyptians cannot visualize that they can afford to engage U. S. contractors to do the construction work because they can employ competent German, French, British or Scandanavian firms at much less cost.

If this situation is to be enlarged in a program that is to be a more or less permanent part of our governmental operations, a certain degree of unfairness to the American construction industry appears that should not go unnoticed. In their long history of work overseas the British have learned how to utilize their own engineering and construction forces in implementing their foreign policy. If the U. S. is now to embark on a foreign policy that takes into account long-term development commitments abroad, we should be no less wise and ingenious.

Our cash commitments will be good investments if they pay off only in peace, but if they can also repay some dividends in kind, so much the better. Some built-in advantages for American firms, which would insure them some of the foreign work, would not be altogether selfish because anything that helps the American economy to remain strong is further assurance that the foreign aid programs can continue.

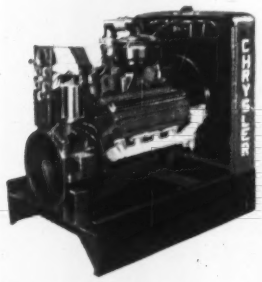
Install Chrysler Industrial Engines

. . . best-engineered, most-economical answer to your power problem

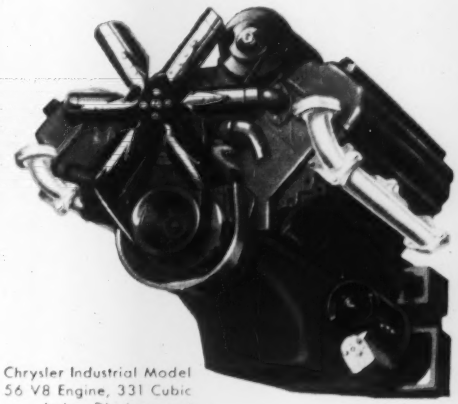
Chrysler Power is the *dependable*, economical, lightweight answer to your high-speed or high-torque power requirements. Within their power ranges, each Chrysler Industrial Engine is a leader in the field and is recognized as such by manufacturers of almost every type of self-powered equipment.

Check the specifications. Note the optional equipment which can be factory supplied or installed to meet the particular requirements of your equipment in the field. Whether equipped for Gasoline, Distillate Fuel, Propane or Natural Gas operation, Chrysler Industrial Engines offer definite advantages . . . performance, ease of maintenance, fast parts service, low initial and operating costs.

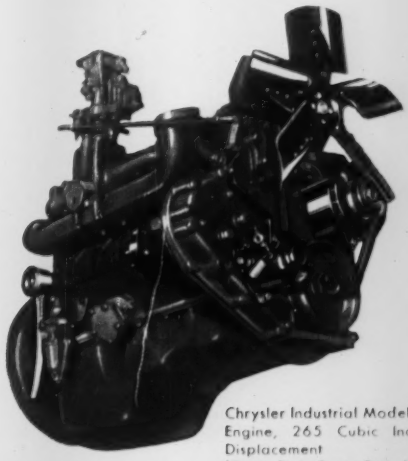
See the dealer nearest you, or write for complete information. ***Dept. 61, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.***



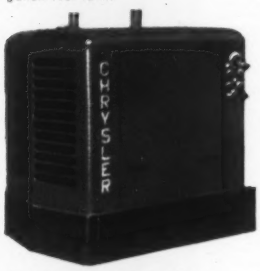
Chrysler Open Power Units. The open power units for all engines include the complete engine, skid base, radiator, instruments and instrument panel, flywheel and flywheel housing. Open power units for V-8 Models Ind. 52 and 56 (pictured), include twenty-five gallon fuel tank.



Chrysler Industrial Model 56 V8 Engine, 331 Cubic Inches Displacement (Front End Chain Drive)



Chrysler Industrial Model 33 Engine, 265 Cubic Inches Displacement (Front End Gear Drive)



Chrysler Enclosed Power Units. The enclosed power units have the complete engine, fuel tank (Models Ind. 30, 31, 32 and 33—sixteen gallon. Models Ind. 52 and 56—twenty-five gallon), storage battery, instruments and instrument panel, flywheel, flywheel housing, skid base and completely enclosing sheet metal.

Optional Equipment—Chrysler Engines

- Chrysler Industrial Torque Converter
- Chrysler gyrol Fluid Coupling
- Three, Four or Five-Speed Transmission
- Twelve or Twenty-four Volt Electrical System
- Distillate, Propane or Natural Gas Burning Carburetor
- Over-Center Clutch and Power Take-Offs
- Vertical or Horizontal Magnetos
- Flexible Coupling for Truck-Type Flywheel
- Radio Shielding and Ignitors
- Heavy-Duty Oil Bath Air Cleaners
- Safety Switches (Low Oil Pressure, High Water Temperature)
- Corrosion or Fungus Resistant Electrical System

GENERAL SPECIFICATIONS ALL MODELS

	Ind. 30	Ind. 31	Ind. 32	Ind. 33	Ind. 52	Ind. 56
No. of Cylinders	6	6	6	6	8	8
Type of Engine—4 Cycle	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Bore—Inches	3¼	3¼	3⅞	3⅞	3⅞	3⅞
Stroke—Inches	4⅝	4⅝	4¼	4¼	3¼	3⅝
Displacement—Cu. In.	230	230	265	265	270	331
Compression Ratio	7.0	7.0	6.8	6.8	7.5	7.5
Valves—Arrangement	L	L	L	L	Vee	Vee
Pistons—No. Rings	4	4	4	4	3	3
Crankshaft—Bearings	4	4	4	4	5	5
Camshaft Drive	Silent Chain	Gear	Silent Chain	Gear	Silent Chain	Silent Chain
Camshaft—Bearings	4	4	4	4	5	5
Crankshaft—Bearing Diameter	2½"	2½"	2½"	2½"	2⅜"	2½"
Lubrication—Type	Press.	Press.	Press.	Press.	Press.	Press.
Lubrication—Type Oil Pump	Rotor	Rotor	Rotor	Rotor	Rotor	Rotor
Lubrication—Oil Capacity Qts.	5	5	5	5	5	5
Ignition—Battery Type	Yes	Yes	Yes	Yes	Yes	Yes
Spark Plug—Size	14 mm	14 mm	14 mm	14 mm	14 mm	14 mm
Starting—Elec. Type	6 Volt	6 Volt	6 Volt	6 Volt	6 Volt	6 Volt
Gen. Reg.—Full Voltage	45 Amps.	45 Amps.	45 Amps.	45 Amps.	45 Amps.	45 Amps.
Gen. Reg.—Full Voltage and Current Control	Yes	Yes	Yes	Yes	Yes	Yes
Carburetor—Type	Down-Draft	Down-Draft	Down-Draft	Down-Draft	Down-Draft	Down-Draft
Fuel Pump	Yes	Yes	Yes	Yes	Yes	Yes
Weight—Approx. (Lbs.)	575	610	740	760	591	845

Specifications subject to change without notice.

HORSEPOWER WITH A PEDIGREE

CHRYSLER INDUSTRIAL ENGINES

INDUSTRIAL ENGINE DIVISION • CHRYSLER CORPORATION

How high load capacity is built into less space in Dodge-TIMKEN All-Steel pillow block

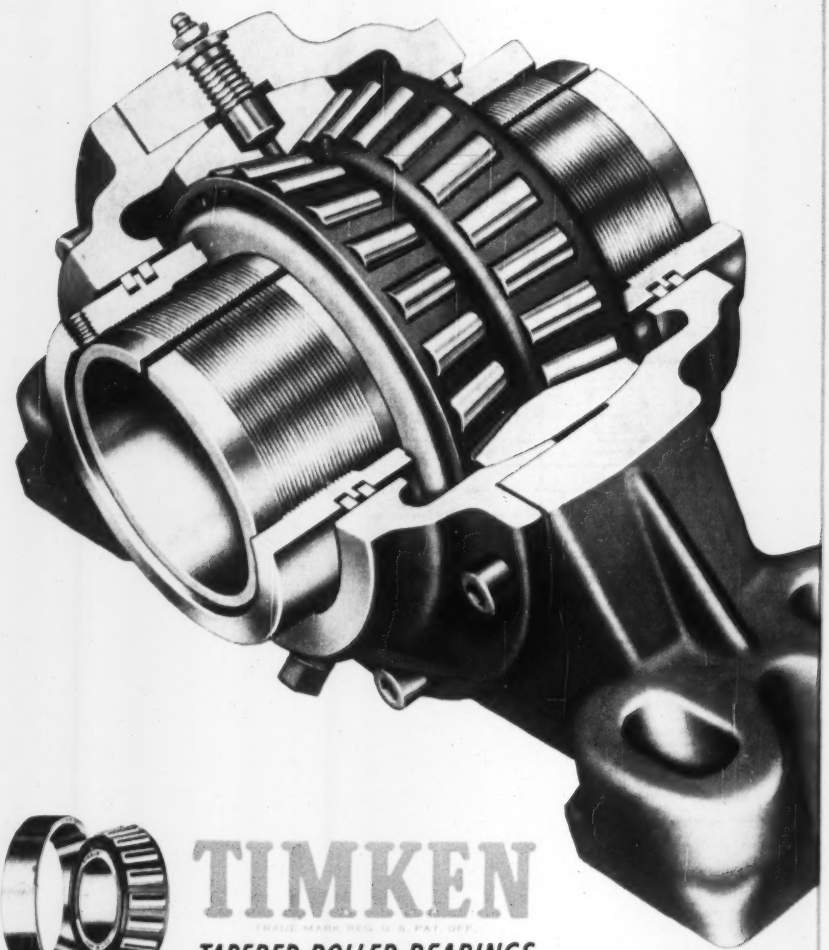
THIS rugged Dodge-Timken pillow block packs more capacity in less space than ever before. All-steel construction gives it extra strength and durability. The design is compact. No special thrust devices that take up extra space are needed—the two-row Timken® tapered roller bearing takes *both* radial and thrust loads in any combination. And full line contact between the rollers and races assures high load capacity.

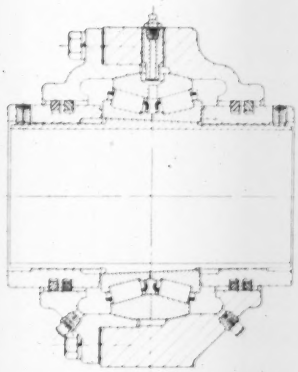
The cutaway view below shows the bearing. It is of special design, with tapered bore and self-aligning spherical outer surface—never requires adjustment. As in all Timken bearings, races and rollers are case-carburized and have tough, shock-resistant cores under hard, wear-resistant surfaces. Under normal conditions, the Timken bearing will last the life of the machinery with which the pillow block is used.

In addition to the all-steel pillow block shown here, Timken bearings are also used in the Type "E", Double-Interlock, Type "C", and Special-Duty pillow blocks—other versatile pillow blocks in the Dodge-Timken line with a wide variety of uses in industry.

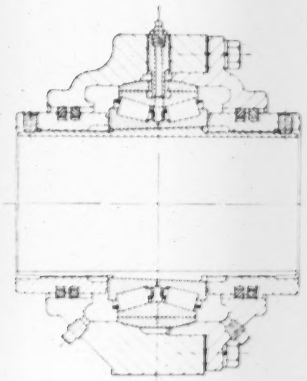
To be sure of the finest bearing steel, we make our own—America's only bearing manufacturer that does. No other bearings can give you all the advantages you get with Timken bearings. Include them in your design plans... specify them for the machines you buy or build. Look for the trademark "Timken"—it's on the bearing that makes any machine run better. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable: "TIMROSCO".

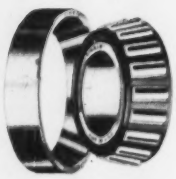
This symbol on a product means its bearings are the best.





How **DODGE MANUFACTURING CORPORATION,** Mishawaka, Ind., mounts Timken bearings in the Dodge-Timken All-Steel pillow block. Above: non-expansion block with fixed bearing. Below: expansion block with floating bearing.





TIMKEN

TRADE MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS

NOT JUST A BALL ○ NOT JUST A ROLLER ⊃ THE TIMKEN TAPERED ROLLER ⊃ BEARING TAKES RADIAL ◐ AND THRUST ◑ LOADS OR ANY COMBINATION